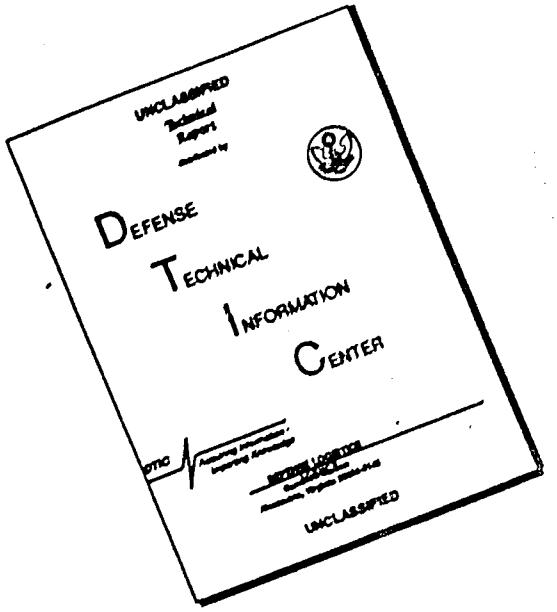
AD 251 797

DISCLAIMER NOTICE



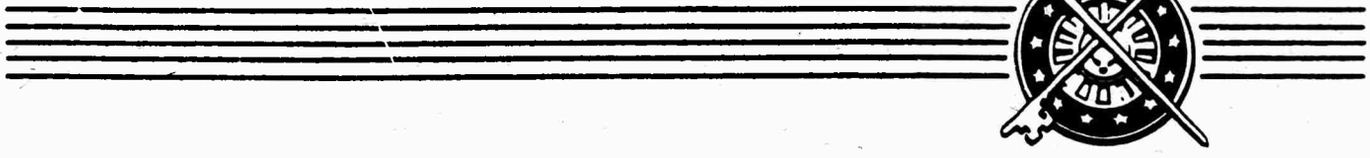
THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

HEADQUARTERS
QUARTERMASTER RESEARCH & ENGINEERING COMMAND
U S ARMY

TECHNICAL REPORT

EP-140

ENVIRONMENT OF SOUTHEAST GREENLAND



QUARTERMASTER RESEARCH & ENGINEERING CENTER
ENVIRONMENTAL PROTECTION RESEARCH DIVISION

OCTOBER 1960

NATICK, MASSACHUSETTS

AD- Div. 2 Accession No. UNCLASSIFIED

Quartermaster Research & Engineering Center, Natick, Mass.
ENVIRONMENT OF SOUTHEAST GREENLAND, by A. D. Hastings, Jr., October 1960, 67 pp. illus. (Technical Report EP-140)

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks Ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about

1. Arctic regions
2. Climatic factors
3. Geography
4. Greenland
5. Harbors
6. Ocean currents
7. Permafrost
8. Plants

I. Hastings, A. D., Jr.
II. Title
III. Series

AD- Div. 2 Accession No. UNCLASSIFIED

Quartermaster Research & Engineering Center, Natick, Mass.
ENVIRONMENT OF SOUTHEAST GREENLAND, by A. D. Hastings, Jr., October 1960, 67 pp. illus. (Technical Report EP-140)

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks Ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about

1. Arctic regions
2. Climatic factors
3. Geography
4. Greenland
5. Harbors
6. Ocean currents
7. Permafrost
8. Plants

I. Hastings, A. D., Jr.
II. Title
III. Series

AD- Div. 2 Accession No. UNCLASSIFIED

Quartermaster Research & Engineering Center, Natick, Mass.
ENVIRONMENT OF SOUTHEAST GREENLAND, by A. D. Hastings, Jr., October 1960, 67 pp. illus. (Technical Report EP-140)

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks Ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about

1. Arctic regions
2. Climatic factors
3. Geography
4. Greenland
5. Harbors
6. Ocean currents
7. Permafrost
8. Plants

I. Hastings, A. D., Jr.
II. Title
III. Series

AD- Div. 2 Accession No. UNCLASSIFIED

Quartermaster Research & Engineering Center, Natick, Mass.
ENVIRONMENT OF SOUTHEAST GREENLAND, by A. D. Hastings, Jr., October 1960, 67 pp. illus. (Technical Report EP-140)

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks Ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about

1. Arctic regions
2. Climatic factors
3. Geography
4. Greenland
5. Harbors
6. Ocean currents
7. Permafrost
8. Plants

I. Hastings, A. D., Jr.
II. Title
III. Series

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

AD- Div. 2 Accession No.

UNCLASSIFIED

Quartermaster Research & Engineering Center, Natick, Mass. ENVIRONMENT OF SOUTHEAST GREENLAND, by A. D. Hastings, Jr., October 1960, 67 pp. illus. (Technical Report EP-140)

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about

1. Arctic regions
2. Climatic factors
3. Geography
4. Greenland
5. Harbors
6. Ocean currents
7. Permafrost
8. Plants

I. Hastings, A. D., Jr.
II. Title
III. Series

AD- Div. 2 Accession No.

UNCLASSIFIED

Quartermaster Research & Engineering Center, Natick, Mass. ENVIRONMENT OF SOUTHEAST GREENLAND, by A. D. Hastings, Jr., October 1960, 67 pp. illus. (Technical Report EP-140)

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about

1. Arctic regions
2. Climatic factors
3. Geography
4. Greenland
5. Harbors
6. Ocean currents
7. Permafrost
8. Plants

I. Hastings, A. D., Jr.
II. Title
III. Series

AD- Div. 2 Accession No.

UNCLASSIFIED

Quartermaster Research & Engineering Center, Natick, Mass. ENVIRONMENT OF SOUTHEAST GREENLAND, by A. D. Hastings, Jr., October 1960, 67 pp. illus. (Technical Report EP-140)

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about

1. Arctic regions
2. Climatic factors
3. Geography
4. Greenland
5. Harbors
6. Ocean currents
7. Permafrost
8. Plants

I. Hastings, A. D., Jr.
II. Title
III. Series

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

HEADQUARTERS
QUARTERMASTER RESEARCH & ENGINEERING COMMAND, US ARMY
Quartermaster Research & Engineering Center
Natick, Massachusetts

ENVIRONMENTAL PROTECTION RESEARCH DIVISION

Technical Report
EP-140

ENVIRONMENT OF SOUTHEAST GREENLAND

Andrew D. Hastings, Jr., M.S.

Geographer

REGIONAL ENVIRONMENTS RESEARCH BRANCH

Project Reference:
7X83-01-008

October 1960

FOREWORD

This report describes the environment of the southeast coastal region of Greenland. It is one of five regional studies being prepared to summarize what is known of the island's environment which would concern military ground operations. Subsequent reports in this series will describe the three remaining coastal regions and the area covered by the inland icecap.

Principal emphasis is given to those factors of the environmental complex which might exert the greatest influence on military logistics and personnel performance of ground duties. Hence, the report considers the climatic elements, physiographic features, land and sea ice conditions, vegetation, and cultural features.

AUSTIN HENSCHEL, Ph.D.
Chief
Environmental Protection Research Division

APPROVED:

PHILIP J. RORK, Lt. Col, QMC
Commanding Officer
QM R and E Center Laboratories

DALE H. SIELING, Ph.D.
Scientific Director
QM Research and Engineering Command

CONTENTS

LIST OF FIGURES: MAPS AND GRAPHS

ABSTRACT

Southeast Greenland has several notable environmental features. It has the least amount of glacier-free land surface of the four coastal regions of Greenland. As a whole, it is the warmest, stormiest, and most mountainous coastal region on the island. The highest mountain peak north of the Arctic Circle and the largest single-exit fiord system in the world are located within the area.

Southeast Greenland is a region of striking contrasts. Thousands of miles of uninhabited, fiorded coast separate the few communities where electricity, radio, and modern commerce have become commonplace. Drab, barren coastal sites are set against glaciated mountain backgrounds of spectacular natural beauty.

Mean annual temperatures average about 30 F for coastal stations in Southeast Greenland. The highest reported temperature, 78 F, occurred in June at Angmagssalik; the lowest, -52 F, was recorded in March at Danmarks ø. Mean annual precipitation ranges from 11.8 inches at Scoresbysund to 99.7 inches at Prins Christians Sund.

Angmagssalik is the largest and most important settlement. The shipping season there is generally less than two months long, from mid-August to mid-September. A radio station, fish-processing plant, hospital, and modern shops are among the facilities in this port of about 1,000 inhabitants. The other settlements of note are Nanortalik, Scoresbysund, and Skjoldungen, in order of decreasing size.

This area's population of about 3,000 people (12 percent of the total for all Greenland) is predominantly Eskimo. Danish inhabitants are administrators and key technical personnel. Nearly all of the indigenous population is literate.

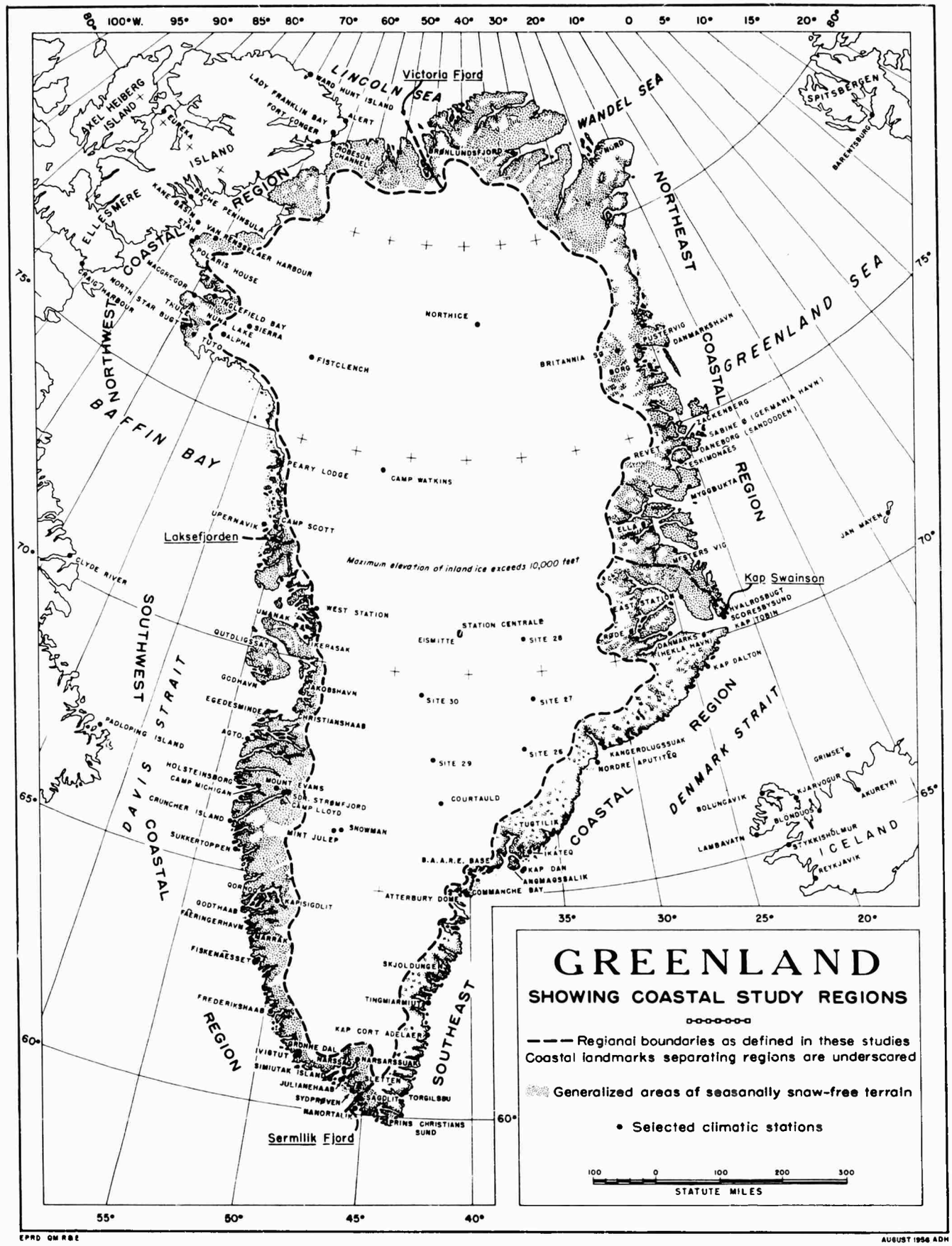

GREENLAND
SHOWING COASTAL STUDY REGIONS
Regional boundaries as defined in these studies
Coastal landmarks separating regions are underscored
Generalized areas of seasonally snow-free terrain
Selected climatic stations
STATUTE MILES
Victoria Fjord
Laksefjorden
Kap Swainson
Sermilik Fjord
LINCOLN SEA
WANDEL SEA
GREENLAND SEA
BAFFIN BAY
DENMARK STRAIT
ICELAND
NORTHEAST COASTAL REGION
SOUTHEAST COASTAL REGION
SOUTHWEST COASTAL REGION
NORTHWEST COASTAL REGION
ELLESMERE ISLAND REGION
Maximum elevation of inland ice exceeds 10,000 feet
EPRD QM RBE
AUGUST 1956 ADH

FIGURE 1

ENVIRONMENT OF SOUTHEAST GREENLAND

1. Introduction

Southeast Greenland is defined here as the region between Sermilik Fjord in the southern cape area and the northernmost watershed of the Scoresby Sund fiord system, stretching inland as far as the innermost appearances of glacier-free land (Fig. 1). The inland limit also corresponds roughly with the average inland extent of the summer melt zone on the icecap surface. The region spans 23 1/2 degrees of longitude (21° 51' to 45°20' West) and 12 1/2 degrees of latitude (59°40' to 72°10' North).

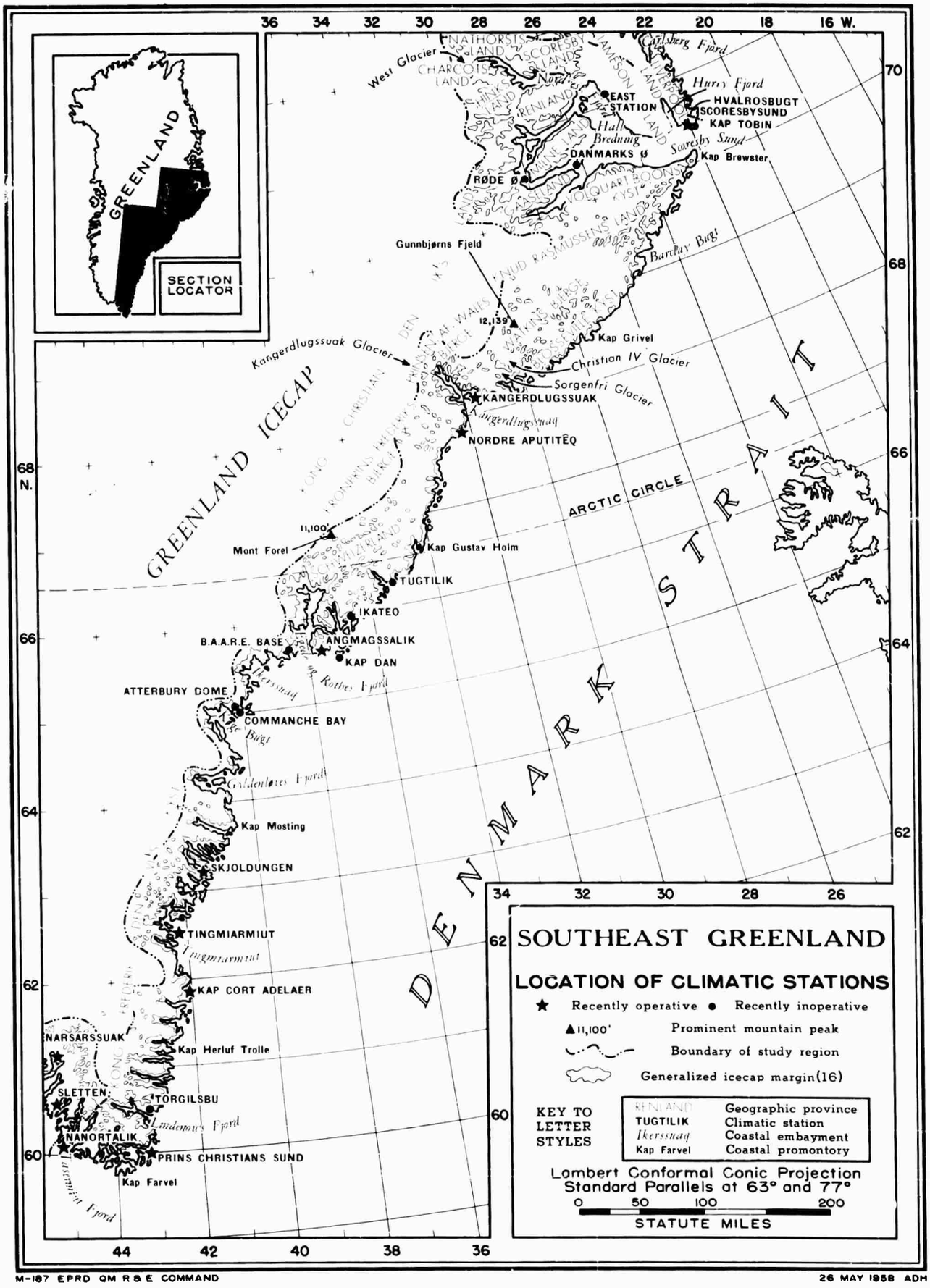
Most of the glacier-free land is confined to a narrow, irregular coastal strip which is broken by numerous glaciers and piedmonts of the inland icecap flowing directly into the sea. Further inland, many mountain peaks (called "nunataks") protrude from the icecap and are seasonally ice-free. In this study, primary interest is focused upon the immediate coastal vicinity; the term "littoral" is used to designate this area.

The coastline from Kap Farvel (on the southern tip of the island) to Scoresbysund trends northeasterly in a succession of scalloped headlands separated by three evenly-spaced major embayments, Tingmiarmiut, Ikerssuaq, and Kangerdlugssuaq (Fig. 2). The entire coastline of the region, including fiords and islands, measures more than 12,000 miles, although the airline distance is only about 1,000 miles; this distance is roughly comparable to that between Charleston, South Carolina, and Augusta, Maine (Fig. 3).

Over 40 percent of the coastline and nearly 60 percent of the glacier-free land of this region lie north of the Arctic Circle. Virtually all of the glacier-free land north of the Arctic Circle is underlain by permafrost.

Most of the region is mountainous with great variations in relief. Extensive fiords and numerous off-shore islands commonly have sheer sea cliffs rising several hundred feet above the water. The vertical relief in some cases is remarkable. In one part of Nordvest Fjord (Scoresby Sund) the total relief from the fiord bed to the highest adjacent mountain tops exceeds 12,250 feet within a horizontal distance of about 10 miles.

Terrestrial life plays a subordinate role to climate and terrain in the regional environment. Plant life is dwarfed, scattered, and precariously adjusted to the environment. Declining populations of land mammals are adequate for native subsistence demands, but only because the economy is geared mainly to sea produce supplemented by imports from Denmark. Human occupance is confined to isolated communications outposts and weather stations and to four principal native settlements, of which Angmagssalik is the largest and most centrally located in the region. In the larger



M-187 EPRD QM R&E COMMAND 26 MAY 1958 ADH

FIGURE 2

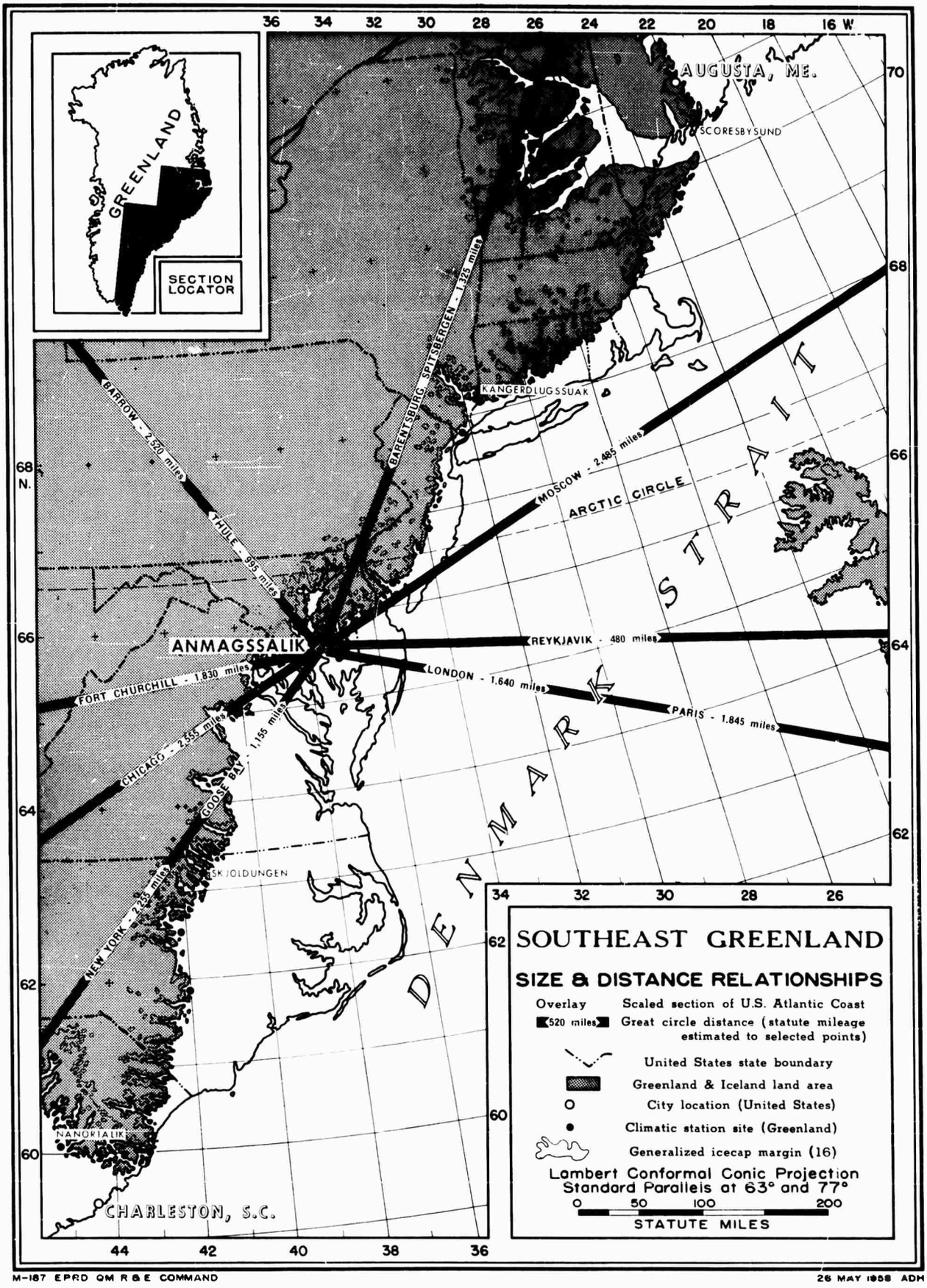

GREENLAND
SECTION LOCATOR
AUGUSTA, ME.
SCORESBYSUND
KANGERDLUGSSUAK
BARROW - 2,570 miles
THULE - 995 miles
GARENTSBURG SPITSBERGEN - 1,325 miles
MOSCOW - 2,485 miles
ARCTIC CIRCLE
DENMARK STRAIT
ANMAGSSALIK
REYKJAVIK - 480 miles
LONDON - 1,640 miles
PARIS - 1,845 miles
FORT CHURCHILL - 1,830 miles
CHICAGO - 2,555 miles
GOOSE BAY - 1,155 miles
NEW YORK - 2,235 miles
ASKJOLDUNGEN
NANORTALIK
CHARLESTON, S.C.
68 N.
SOUTHEAST GREENLAND
SIZE & DISTANCE RELATIONSHIPS
Overlay Scaled section of U.S. Atlantic Coast
520 miles Great circle distance (statute mileage estimated to selected points)
United States state boundary
Greenland & Iceland land area
City location (United States)
Climatic station site (Greenland)
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 3

COMMUNITIES, MODERN DANISH TECHNOLOGY OPERATES ALONGSIDE THE RELATIVELY PRIMITIVE NATIVE FISHING CULTURE. KAYAKS STILL SHARE HARBOR SPACE WITH MODERN POWER VESSELS, ALTHOUGH MORE AND MORE ESKIMOS ARE ACQUIRING SUCH "LUXURIES" AS OUTBOARD MOTORS.

SOUTHEAST GREENLAND HAS A HARSH, DISAGREEABLE CLIMATE MOST OF THE YEAR. ONLY IN THE SOUTHERN CAPE AREA DO MEAN ANNUAL TEMPERATURES RISE ABOVE THE FREEZING POINT AND HARBORS BECOME FREE OF SEA ICE FOR AS MUCH AS 3 MONTHS OF THE YEAR. IN THE FIORDS, FOEHN (DOWNSLOPE) WINDS OF GALE FORCE OCCUR FREQUENTLY ACCOMPANIED BY RISING TEMPERATURE; OCCASIONALLY, DURING PERIODS OF SUB-ZERO TEMPERATURES, WINDCHILL CONDITIONS ARE TEMPORARILY PRODUCED WHICH WILL FREEZE EXPOSED SKIN SURFACES IN LESS THAN HALF A MINUTE. BARE, DRY, GROUND SURFACE IS RELATIVELY UNCOMMON. FOR ABOUT 300 DAYS IN AN AVERAGE YEAR THERE IS LIKELY TO BE SNOW, SLEET, SLUSH, OR MUD ON THE GROUND IN THE VICINITY OF MOST SETTLEMENTS. IN THE NORTH, ONLY 3 OR 4 MONTHS HAVE MEAN TEMPERATURES ABOVE FREEZING. IN THE EXTREME SOUTH, TEMPERATURES ARE ABOVE FREEZING FOR 6 MONTHS, BUT THE AREA IS SUBJECT TO SEVERE STORMS WITH HEAVY PRECIPITATION. THE MID-SECTION OF THE COAST, IN THE VICINITY OF ANGMAGSSALIK, SEEMS TO BE THE MOST DESIRABLE FOR HUMAN HABITATION. IN THAT AREA TEMPERATURES ARE ABOUT AVERAGE FOR THE REGION, PRECIPITATION IS MODERATE, WINDS ARE RELATIVELY LIGHT, THERE IS LITTLE IF ANY PERMAFROST, AND THE SEA ICE USUALLY STANDS WELL OUT FROM THE COAST IN THE SHIPPING SEASON.

2. PHYSIOGRAPHY

THE HIGHEST MOUNTAIN RANGES IN GREENLAND BORDER THE SOUTHEAST LITTORAL. IN KONG CHRISTIAN DEN IX'S LAND AND KNUD RASMUSSENS LAND THERE ARE FOUR GROUPS OF PEAKS WHICH FORM A NEARLY CONTINUOUS COASTAL MOUNTAIN SYSTEM. FROM SOUTH TO NORTH THESE GROUPS OF MOUNTAINS ARE: SCHWEIZERLAND, KRONPRINS FREDERIKS BJERGE, PRINSEN AF WALES BJERGE, AND WATKINS BJERGE (FIG. 2). TALLEST AND MOST EXTENSIVE AMONG THESE ARE THE WATKINS BJERGE, LOCATED INLAND FROM THE BLOSSEVILLE KYST BETWEEN KANGERDLUGSSUAQ AND KAP GRIVEL. IN THIS GROUP ARE AT LEAST FIVE PEAKS ABOVE 10,000 FEET M.S.L., INCLUDING GUNNBJØRNS FJELD (68°55' N., 29°52' W.) WHOSE 12,139-FOOT SUMMIT IS THE HIGHEST POINT IN GREENLAND. GUNNBJØRNS FJELD IS, IN FACT, THE HIGHEST POINT OF LAND ANYWHERE IN THE NORTHERN HEMISPHERE NORTH OF THE ARCTIC CIRCLE (FIG. 2). NORTH OF ANGMAGSSALIK, THE SCHWEIZERLAND GROUP HAS THREE SUMMITS ABOVE 10,000 FEET M.S.L. THE HIGHEST OF THESE IS MONT FOREL (FIG. 2) (66°56' N., 36°46' W.) AT 11,100 FEET.

MANY OF THE COASTAL MOUNTAINS APPEAR TO RISE AS NUNATAKS (I.E., PROTRUDING THROUGH THE SURROUNDING ICE) FROM THE INLAND ICECAP. UNQUESTIONABLY, SOME OF THE PEAKS WHICH ARE FARTHEST FROM THE COAST DO BELONG IN THAT CATEGORY, BUT MOST OF THEM SEEM TO BE ASSOCIATED WITH A SEPARATE HIGHLAND ICECAP SYSTEM. THIS SYSTEM FLOWS OUT RADIALLY COASTWARD AND AS FAR AS 50 MILES INLAND, WHERE IT JOINS AND BECOMES PART OF THE CONTIGUOUS ICE MASS OF THE INLAND ICECAP. THERE HAVE BEEN FEW SCIENTIFIC MEASUREMENTS OF THIS

COUNTER MOVEMENT AND, EXCEPT ALONG THE PATHS OF OUTLET GLACIERS FROM THE MAIN ICECAP, IT IS DIFFICULT TO ESTIMATE WHERE THE ICE FROM THE OPPOSING EPICENTERS ACTUALLY MEETS. A MAP PREPARED BY L.R. WAGER (PUBLISHED BY THE GEODAETISK INSTITUT, COPENHAGEN, 1934) FROM OBSERVATIONS MADE BY SEVERAL REPUTABLE EXPEDITION SCIENTISTS, SHOWS THE APPROXIMATE MEETING ZONE FOR THE AREA BETWEEN ANGMAGSSALIK AND KANGERDLUGSSUAK. NORTH OF KANGERDLUGSSUAK THERE HAVE BEEN FEW OBSERVATIONS AND SOUTH OF ANGMAGSSALIK ALL OF THE ICE MASS ORIGINATES FROM THE GREAT INLAND EPICENTER. IN THE NORTHERN PART OF KNUD RASMUSSENS LAND THE EVIDENCE FOR SEPARATE ICECAPS IS NOT CLEAR. A RECENT AMERICAN GEOGRAPHICAL SOCIETY PUBLICATION (1) STATES: "THE INLAND ICE APPEARS TO SEND AN ARM OUT INTO THE NORTHEASTERN PART OF KNUD RASMUSSENS LAND. THIS IS PENETRATED BY NUMEROUS NUNATAKS AND MAY PERHAPS BE CALLED A HIGHLAND GLACIER."

IN SOME PLACES THE INLAND ICE FLOWS OUT TO THE COAST THROUGH BROAD PASSES IN THE COASTAL MOUNTAINS. NOTABLE EXAMPLES OF SUCH OUTLET GLACIERS WHICH CALVE INTO THE SEA BETWEEN KAP GRIVEL AND KANGERDLUGSSUAQ ARE THE CHRISTIAN IV, THE SORGENFRI, AND THE KANGERDLUGSSUAQ (FIG. 2). CHRISTIAN IV GLACIER IS ONE OF THE LARGEST ICECAP OUTLETS IN ALL EAST GREENLAND. IT FLOWS FROM THE ICECAP PROPER, NORTH OF GUNNBJØRNS FJELD, AT AN ELEVATION OF ABOUT 6,000 FEET, DOWN TO SEA LEVEL, 77 MILES AWAY, WHERE THE WIDTH OF ITS TERMINUS IS ABOUT 7 MILES. WHILE SUCH OUTLETS ARE COMMONPLACE IN THE SOUTHEAST REGION, THERE ARE THREE LOCALITIES WHERE THE INLAND ICECAP EXTENDS IN ITS MASSIVE, SPRAWLING FORM TO OR NEARLY TO THE SHORE. THE NORTHERNMOST OF THESE AREAS IS LOCATED BETWEEN THE 67TH PARALLEL AND THE VICINITY OF NORDRE APUTITÊQ. THE SECOND AND BROADEST AREA LIES BETWEEN THE 64TH PARALLEL AND EGEDE OG ROTHES FJORD. THE THIRD AREA STRETCHES ABOUT 30 MILES NORTHWARD ALONG THE COAST FROM KAP CORT ADELAER.

SOUTH OF THE 64TH PARALLEL SOME OF THE SNOW-CAPPED PENINSULAS SUPPORT ICE FIELDS THAT CANNOT TRULY BE CALLED "ICECAPS." MANY ARE ONLY FIRN OR NEVE FIELDS. NOTABLE AMONG THE LARGER FIRN FIELDS ARE THOSE ON THE PENINSULA WEST OF KAP MOSTING AND THE PENINSULA BETWEEN LINDENOWS FJORD AND PRINS CHRISTIANS SUND.

APART FROM THE COASTAL MOUNTAINS, MOST OF THE REGION IS A RUGGEDLY DISSECTED, ICE-COVERED PLATEAU WITH ELEVATIONS GENERALLY BELOW 8,000 FEET (FIG. 4). IN SCORESBY LAND NORTH OF NORDVEST FJORD, HOWEVER, THERE ARE TWO SUMMITS BETWEEN 8,000 AND 9,000 FEET HIGH.

THE MOUNTAINS BORDERING INNER SCORESBY SUND ARE DISSECTED REMNANTS OF A GREAT PLATEAU COMPOSED MAINLY OF GRANITIC ROCKS AND QUARTZITE, BUT CAPPED WITH BASALT IN MILNE LAND AND GAASELAND. THE COASTAL MOUNTAINS FROM SCORESBY SUND TO KANGERDLUGSSUAQ ARE OF VOLCANIC ORIGIN WITH BASALT PREDOMINATING. SOUTH OF KANGERDLUGSSUAQ TO THE VICINITY OF PRINS CHRISTIANS SUND THE VISIBLE BULK OF THE PLATEAU STRUCTURE IS MADE UP OF GNEISSES AND SCHISTS WITH SOME GRANITES AND SYENITE. GRANITES AND SYENITE PREDOMINATE ALONG THE COAST BETWEEN KAP CORT ADELAER AND KAP HERLUF TROLLE AND AGAIN THROUGHOUT THE KAP PARVEL ARCHIPELAGO SOUTHWEST OF PRINS CHRISTIANS SUND.

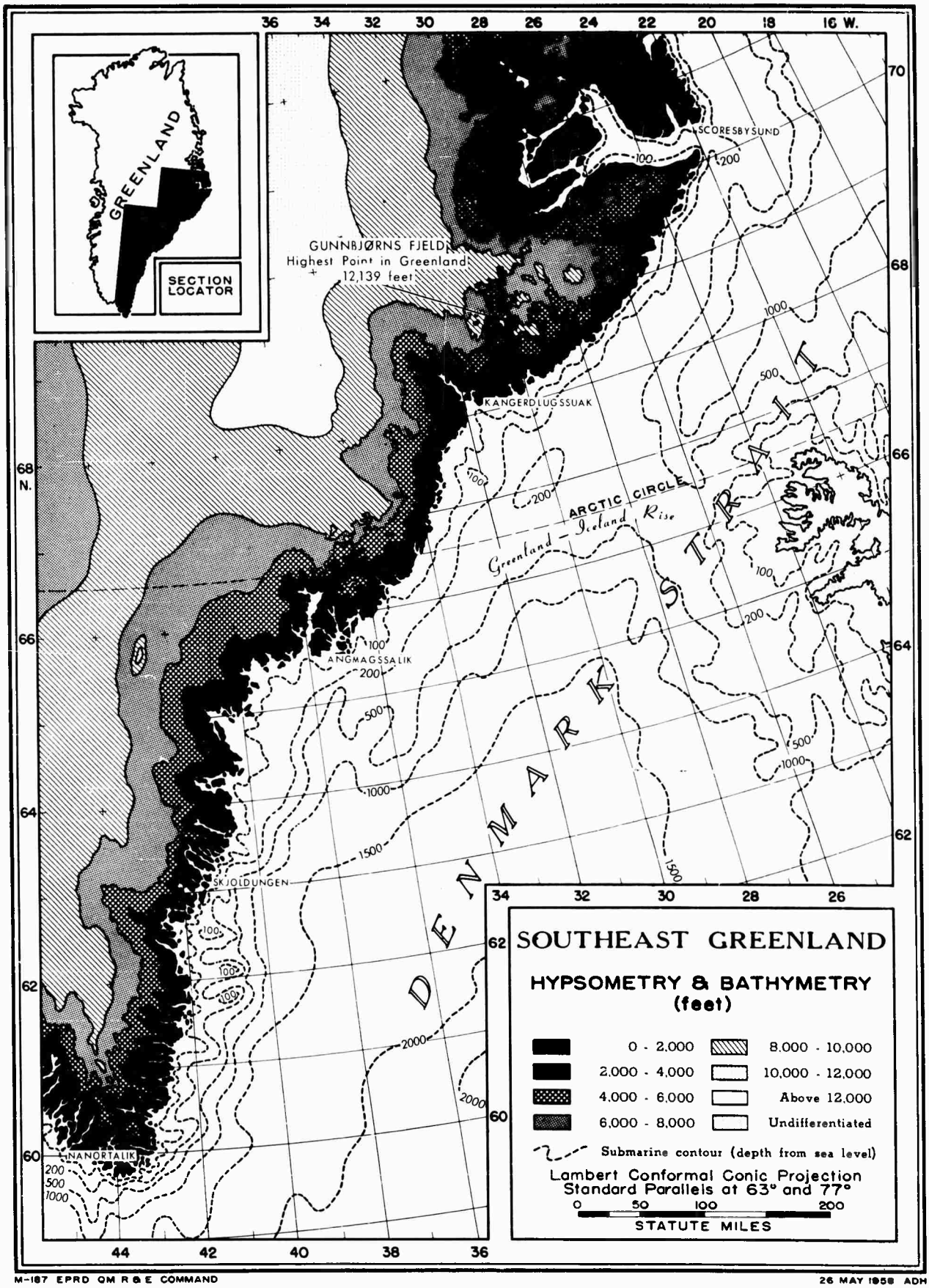

GREENLAND
SECTION LOCATOR
GUNNBJØRNS FJELD
Highest Point in Greenland
12,139 feet
SCORESBYSUND
KANGERDLUGSSUAK
ANGMAGSSALIK
SKJOLDUNGEN
NANORTALIK
ARCTIC CIRCLE
Greenland – Iceland Rise
DENMARK STRAIT
SOUTHEAST GREENLAND
HYPSOMETRY & BATHYMETRY
(feet)
0 - 2,000
2,000 - 4,000
4,000 - 6,000
6,000 - 8,000
8,000 - 10,000
10,000 - 12,000
Above 12,000
Undifferentiated
Submarine contour (depth from sea level)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 4

The Scoresby Sund fiord system is composed of seven tributary fiords feeding out to the Greenland Sea through Scoresby Sund. These are, in order of diminishing size: Hall Bredning, Gaasefjord, Nordvest Fjord, Øfjord, Røde Fjord, Føhn Fjord (which separate Milne Land from the mainland) and Hurry Fjord. Together they form the largest single-exit fiord system on earth, 32 miles broad at its widest point and penetrating 483 miles inland.

Nordvest Fjord, the longest and northernmost arm of the Scoresby Sund system, is exceptionally deep. At one point the depth of water has been measured at 793 fathoms (4,758 feet).* About 10 miles north, the Scoresby Land plateau rises to over 7,500 feet above sea level.

The only significant lowlands within Southeast Greenland are located in the Scoresby Sund area (Fig. 5). The largest is a 10- to 25-mile wide littoral in Jameson Land along the northeast shore of Scoresby Sund proper and of Hall Bredning. This lowland has a gently rolling surface of sand, gravel, and peat soils overlying permafrost, glacial sediments, and river alluviums. Through this lowland pass the only sizable streams in the entire southeast region. Most of the streams rise in the large area of ice-free hill country of interior Jameson Land. The largest, the Schuchert Elv or Schucherts Flod (Fig. 5), drains the ice-capped highlands of Scoresby Land. The Schuchert Elv has extensive gravel flats, typical of glacial outwash streams, through which the braided channels of the river wind their way from some 40 miles inland. In some places the flats are as much as 4 miles wide.

Another lowland in the Scoresby Sund area extends along the mainland shore of Røde Fjord west of Milne Land and northward along a broad valley between the highlands of Renland and Hinks Land. There are, of course, many narrow strips of lowland in certain fiord valleys, but most are very small and mainly confined to the southern fiords around Nanortalik. Though shallow and stony, the soils of the fiord lowlands are among the most fertile in all Greenland.

The largest area of hilly terrain is that of interior Jameson Land. Soils there occur in shallow, stony patches among sandstone and shale outcrops. Continuous permafrost underlies the surface in this area. This is true also of most Southeast Greenland soils north of the 68th parallel.

Small sections of hilly littoral are found in three other places (Fig. 5) from Scoresby Sund to Egede og Rothes Fjord. There is a narrow coastal fringe of basalt hills between Kap Brewster and Barclay Bugt and another very small cluster of hills around the site of the Kangerdlugssuak meteorological station. Both areas are well within the continuous permafrost

---

*Cartographically unfeasible to show depth on Figure 5.


GREENLAND
SECTION LOCATOR
Schubert Ejt
SCORESBYSUND
KANGERDLUGSSUAK
ARCTIC CIRCLE
DENMARK STRAIT
ANGMAGSSALIK
SKJOLDUNGEN
NANORTALIK
SOUTHEAST GREENLAND
LANDFORMS
(a generalized distribution)
Average relief character shown in brackets
Perennial ice above crevassed area and summer melt zone [mostly very gentle]
Highland and crevassed icecap [rugged]
Transitional upland [moderate]
Coastal & valley lowland [gentle]
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 5

ZONE. THE THIRD HILLY AREA IS AMONG THE ISLANDS AND ALONG THE COAST SURROUNDING THE SETTLEMENT AT ANGMAGSSALIK. A GREAT DEAL OF NAKED BEDROCK OUTCROPS IN THIS AREA. SOILS ARE VERY SHALLOW, AND APPARENTLY FREE OF PERMAFROST.

THERE ARE ALSO HILLY TRANSITIONS BETWEEN THE FIORDS AND UPLANDS IN THE HEADS OF MANY VALLEYS IN THE NANORTALIK DISTRICT. THESE AREAS ARE TOO SMALL TO SHOW ON FIGURE 5; HOWEVER, THE MORE WIDESPREAD HILL COUNTRY FARTHER WEST IN JULIANEHAAB DISTRICT IS ILLUSTRATED.

THE ONLY FRESH WATER LAKES WORTH NOTING IN THE REGION ARE IN THE ANGMAGSSALIK AREA, THOUGH FEW OF THESE ARE LARGER THAN ABOUT 1 MILE ACROSS. THEY ARE NORMALLY FROZEN OVER FROM MID-OCTOBER TO MID-JUNE AND IN SOME YEARS ARE CLEAR ONLY DURING AUGUST AND SEPTEMBER.

SOUTHEAST GREENLAND THEN IS A RUGGED, MOUNTAINOUS, AND DEEPLY FIORDED STRETCH OF COAST. IT IS CLOSELY CROWDED BY THE INLAND ICECAP, LEAVING VERY LITTLE ICE-FREE LAND SURFACE. THERE ARE ONLY LOCALIZED DRAINAGE SYSTEMS, FEW FRESHWATER LAKES, AND LIMITED AREAS SUITABLE FOR CONSTRUCTION. THE OUTSTANDING EXCEPTION TO MOST OF THESE RESTRICTIONS IS JAMESON LAND. ALTHOUGH THERE ARE FEW, IF ANY, LAKES IN JAMESON LAND, THERE ARE CONSIDERABLE AREAS OF LOWLAND, ABOUT FIFTY SIZEABLE STREAMS, AND OVER 5,500 SQUARE MILES OF ICE-FREE LAND. ABOUT 90 PERCENT OF THIS AREA LIES BELOW THE 2,000 FOOT LEVEL. THE PRIMARY OBSTACLE TO CONSTRUCTION IN JAMESON LAND IS THE CONTINUOUS LAYER OF PERMAFROST WHICH LIES CLOSE TO THE SURFACE OF THE GROUND.

3. OCEAN CURRENTS AND SEA ICE CONDITIONS

THE SEA APPROACHES TO SOUTHEAST GREENLAND ARE BLOCKED BY A WIDE BELT OF PACK ICE CARRIED SLOWLY SOUTHWARD BY THE EAST GREENLAND CURRENT. THIS CURRENT (FIG. 6) IS A BROAD FLOW OF COLD SURFACE SEA WATER FROM THE ARCTIC OCEAN, WHICH SETS SOUTH-SOUTHWESTWARD DOWN DENMARK STRAIT TO THE SOUTHERN CAPE OF GREENLAND (KAP FARVEL). ITS EFFECT IS FELT WELL INSHORE ALONG THE COAST OF LIVERPOOL LAND, AND ONE OF ITS OFF-SHOOTS CIRCULATES INTO SCORESBY SUND AS FAR AS MILNE LAND. AS THE COAST FALLS AWAY SOUTHWESTWARD IN THE VICINITY OF KAP GRIVEL, THE MAINSTREAM OF THE CURRENT STANDS FARTHER OFFSHORE ON A MORE OR LESS DIRECT COURSE FOR KAP FARVEL.

THE WARMER IRMINGER CURRENT FROM SOUTH OF ICELAND JOINS THE EAST GREENLAND CURRENT IN DENMARK STRAIT NEAR LATITUDE 64° NORTH. INSHORE FROM THIS MIXING ZONE A MAJOR OFFSHOOT DIVERGES FROM THE EAST GREENLAND CURRENT AND RECURVES NORTHWARD PAST KØGE BUGT AND IKERSSUAQ TOWARD ANGMAGSSALIK. WHERE THE EAST GREENLAND CURRENT PASSES KAP FARVEL ON THE SOUTHERNMOST END OF THE ISLAND, IT SWINGS WEST-NORTHWESTWARD UP THE SOUTHWEST COAST.

THE EAST GREENLAND ICE PACK IS COMPOSED OF OLD POLAR PACK FLOES, OFTEN 20 TO 30 FEET THICK IN RAFTED CHUNKS, WHICH ORIGINATE IN THE ARCTIC OCEAN.

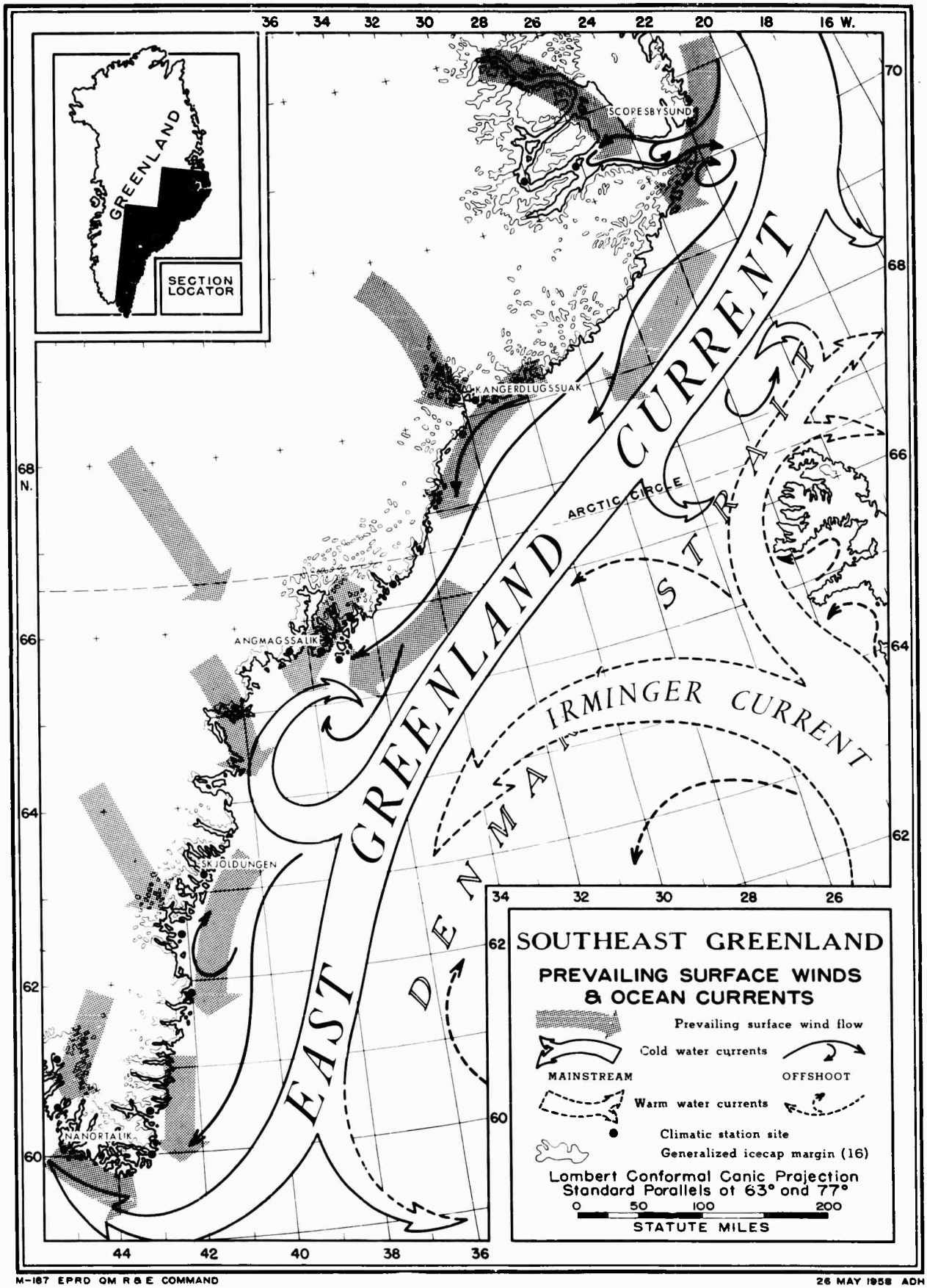

GREENLAND
SECTION LOCATOR
SCORESBYSUND
KANGERDLUGSSUAK
ANGMAGSSALIK
SKJOLDUNGEN
NANORTALIK
ARCTIC CIRCLE
EAST GREENLAND CURRENT
DENMARK STRAIT
IRMINGER CURRENT
SOUTHEAST GREENLAND
PREVAILING SURFACE WINDS & OCEAN CURRENTS
Prevailing surface wind flow
Cold water currents
MAINSTREAM
OFFSHOOT
Warm water currents
Climatic station site
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R & E COMMAND
26 MAY 1958 ADH

FIGURE 6

ICEBERGS AND RELATED ICE FORMATIONS FROM THE DISCHARGE OF CERTAIN EAST GREENLAND GLACIERS ALSO CONTRIBUTE TO THE PACK. THE WIDTH OF THE PACK VARIES WITH THE WIND SHIFTS AND SEASONAL TEMPERATURE FLUCTUATIONS THROUGHOUT ITS COURSE, BUT GENERALLY DIMINISHES WITH LATITUDE SO THAT IT IS LESS BROAD IN THE SOUTH. THE FOLLOWING TABULATION GIVES (IN STATUTE MILES) THE AVERAGE WIDTHS OF THE EAST GREENLAND PACK THROUGHOUT A NORMAL SEASONAL CYCLE AT THE LATITUDES OF THREE SELECTED SHORE STATIONS.

AT LATITUDE OF:	JANUARY	APRIL	JULY	OCTOBER
SCORESBYSUND	170	220	85	40
ANGMAGSSALIK	60	100	35	25
PRINS CHRISTIANS SUND	25	100	65	0

AS THE WIDTH OF THE EAST GREENLAND PACK INCREASES NORTHWARD, SO DOES ITS AVERAGE THICKNESS. THERE IS AN INVERSE RELATIONSHIP BETWEEN THE TEMPERATURE AND SALINITY OF THE SEA WATER ON THE ONE HAND AND THE VOLUME OF PACK ICE ON THE OTHER. THUS, AS TEMPERATURE AND SALT CONTENT OF THE SEA WATER DECREASE IN THE NORTHERLY LATITUDES, THE ICE VOLUME INCREASES. DURING APRIL, MAY, OR BOTH IN SOME NOTABLY HEAVY ICE YEARS (E.G., 1896, 1906, 1907, 1918, 1938), THE EAST GREENLAND PACK HAS COMPLETELY BLOCKED DENMARK STRAIT IN THE VICINITY OF THE GREENLAND-ICELAND RISE (FIG. 4). THE RISE IS A SUBMARINE RIDGE OF VOLCANIC ORIGIN WHICH LIES AT A DEPTH OF LESS THAN 500 FEET BETWEEN THE NORTHWEST CAPES OF ICELAND AND THE KANGERDLUGSSUAK AREA OF GREENLAND.

DURING AN AVERAGE SUMMER, THE PACK ICE DOES NOT REMAIN FROZEN TO THE SOUTHEAST GREENLAND SHORE. ALONG THE COAST FROM KØGE BUGT TO THE HEADLANDS ABOUT 50 MILES EAST OF KANGERDLUGSSUAQ, THE SHORE WATER NORMALLY OPENS UP TO A WIDTH OF 25 TO 50 MILES (FIG. 7C) EXCEPT FOR THE WATERS AROUND KAP DAN WHERE SMALL PACK FIELDS SOMETIMES LINGER ABOUT THE COASTAL ISLANDS AND EXTEND SOME 15 TO 20 MILES SOUTHWARD.

NAVIGATION CONDITIONS AND THE DURATION OF THE SHIPPING SEASON VARY WITH LATITUDE AND EXPOSURE, BUT, GENERALLY SPEAKING, SHIPPING TO MOST EAST GREENLAND PORTS MUST BE CARRIED ON DURING THE RELATIVELY SHORT SUMMER SEASON. AT SCORESBYSUND THE PORT AREA IS RARELY FREE OF LOOSE ICE, BUT THE SOLID PACK IS USUALLY ABSENT FROM EARLY AUGUST TO MID-SEPTEMBER. THE PACK LEAVES THE BAY MOUTH AT ANGMAGSSALIK ABOUT MID-AUGUST AND RETURNS BY MID-OCTOBER (FIG. 7D). THE COASTAL WATER SOUTH OF KAP CORT ADELAER IS FREE OF PACK ICE FROM LATE JULY OR EARLY AUGUST UNTIL CHRISTMAS.

BECAUSE OF THE HEAVY SUMMER DISCHARGE OF ICEBERGS FROM CERTAIN OUTLET GLACIERS OF THE INLAND ICECAP, SHIPPING IN SCORESBY SUND CAN BE HAZARDOUS EVEN DURING THE SO-CALLED "NAVIGABLE" SEASON. NOTORIOUS FOR ITS GREAT VOLUME OF DISCHARGE IS WEST GLACIER (FIG. 2) WHICH CALVES INTO NORDVEST FJORD IN THE NORTHWESTERN EXTREMITY OF THE SCORESBY SUND FIORD SYSTEM. LAUGE KOCH (21) DESCRIBED THE WEST GLACIER AS "BY FAR THE MOST PRODUCTIVE OF ALL

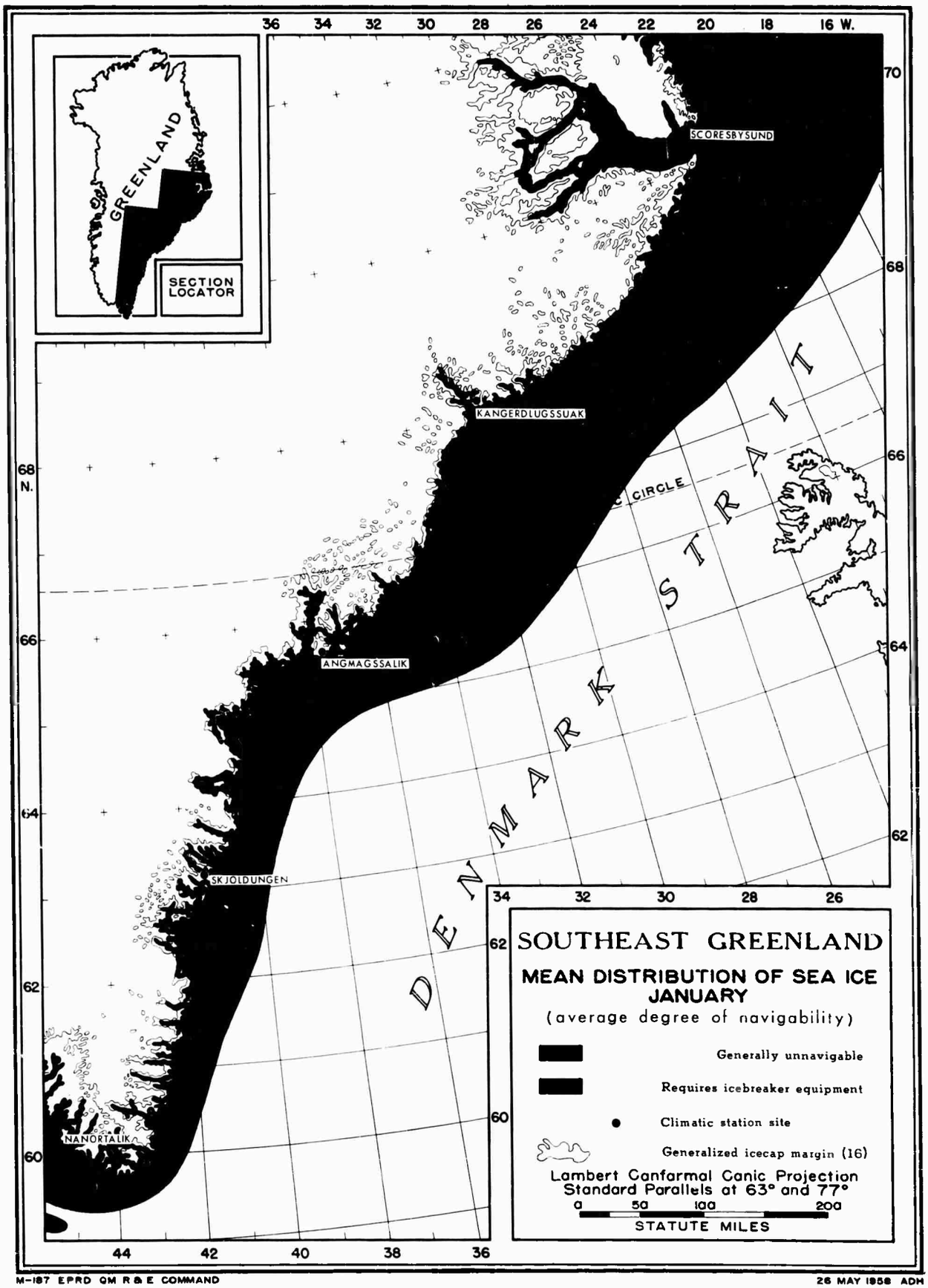

36 34 32 30 28 26 24 22 20 18 16 W.
GREENLAND
SECTION LOCATOR
SCORESBYSUND
KANGERDLUGSSUAK
ANGMAGSSALIK
SKJOLDUNGEN
NANORTALIK
CIRCLE
DENMARK STRAIT
70
68
66
64
62
60
68 N.
44 42 40 38 36
34 32 30 28 26
SOUTHEAST GREENLAND
MEAN DISTRIBUTION OF SEA ICE
JANUARY
(average degree of navigability)
Generally unnavigable
Requires icebreaker equipment
Climatic station site
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 7A

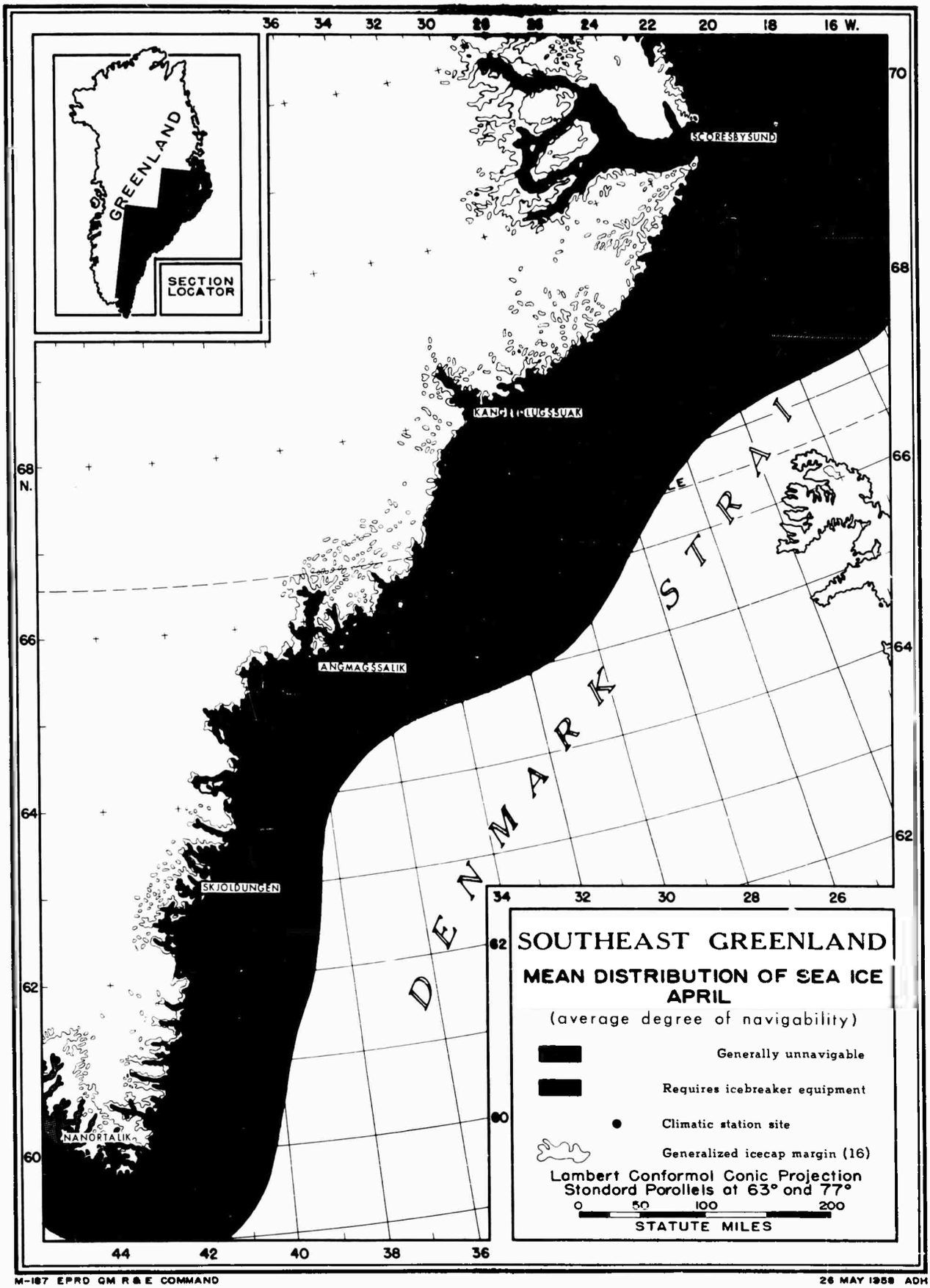

GREENLAND
SECTION LOCATOR
SCORESBYSUND
KANGERLUGSSUAK
ANGMAGSSALIK
SKJOLDUNGEN
NANORTALIK
DENMARK STRAIT
SOUTHEAST GREENLAND
MEAN DISTRIBUTION OF SEA ICE
APRIL
(average degree of navigability)
Generally unnavigable
Requires icebreaker equipment
Climatic station site
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
36 34 32 30 28 26 24 22 20 18 16 W.
70
68
66
64
62
60
68 N.
44 42 40 38 36
34 32 30 28 26
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 7B

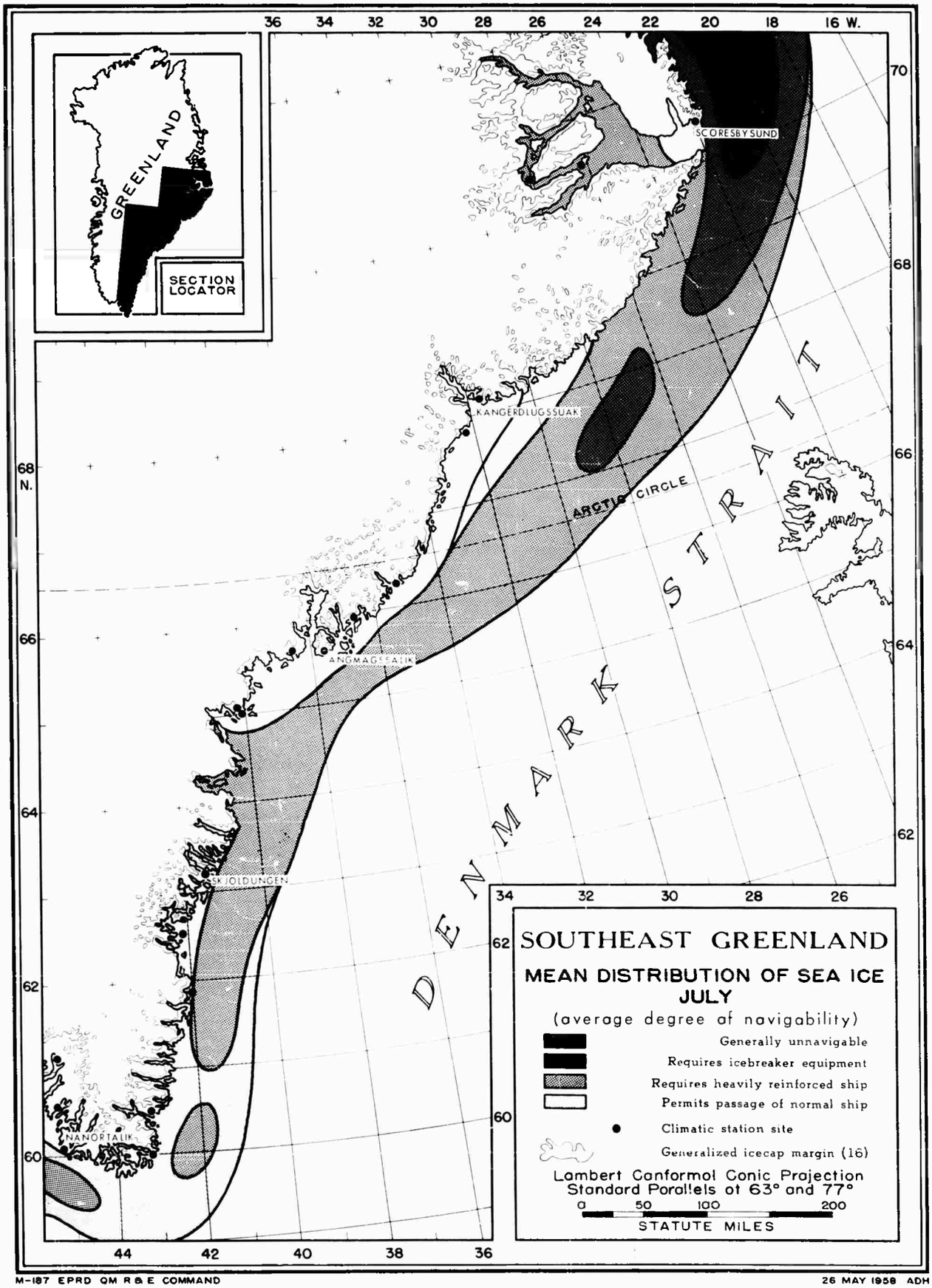
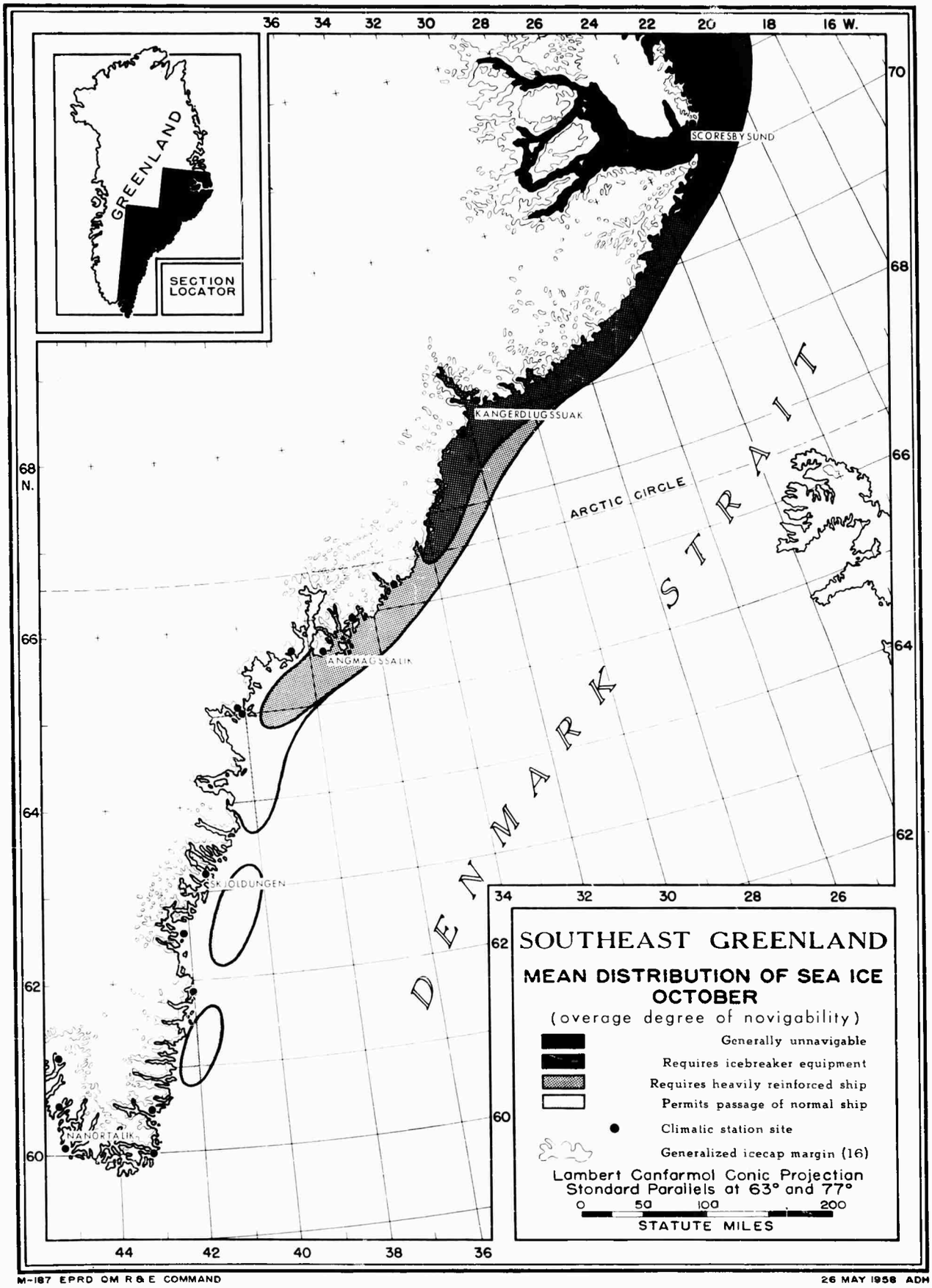

GREENLAND
SECTION LOCATOR
SCORESBYSUND
KANGERDLUGSSUAK
ANGMAGSSALIK
SKJOLDUNGEN
NANORTALIK
ARCTIC CIRCLE
DENMARK STRAIT
SOUTHEAST GREENLAND
MEAN DISTRIBUTION OF SEA ICE
JULY
(average degree of navigability)
Generally unnavigable
Requires icebreaker equipment
Requires heavily reinforced ship
Permits passage of normal ship
Climatic station site
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
36 34 32 30 28 26 24 22 20 18 16 W.
70 68 66 64 62 60
68 N.
66 64 62 60
44 42 40 38 36
34 32 30 28 26
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 7c



M-187 EPRD CM R&E COMMAND 26 MAY 1958 ADH

FIGURE 7D

THE GLACIERS IN EAST GREENLAND." IT IS GENERALLY POSSIBLE FOR REINFORCED VESSELS TO MAKE THEIR WAY INTO THE PORT OF SCORESBYSUND FROM LATE JULY TO EARLY SEPTEMBER; HOWEVER, AFTER MID-SEPTEMBER, ANY SHIP LEAVING THE PORT RISKS ENCOUNTERING SEVERE AUTUMN GALES. BECAUSE OF THE FUNNELING EFFECT OF THE FIORD TOPOGRAPHY THESE GALES ARE OFTEN CONSIDERABLY STRONGER THAN THE GRADIENT WIND PATTERN IN THE AREA WOULD SUGGEST. THE BIGGEST DIFFICULTY IS THAT THE PREVAILING ONSHORE SET OF THE EAST GREENLAND CURRENT KEEPS THE MAIN BODY OF THE PACK ICE CLOSE IN TO THE MOUTH OF SCORESBY SUND DURING THE ENTIRE YEAR.

ALONG THE COAST BETWEEN KAP BREWSTER AND KAP CORT ADELAER (FIG. 2), JULY AND AUGUST HAVE THE BEST COMBINATION OF ICE AND WEATHER CONDITIONS FOR SHIPPING. EVEN DURING THESE MONTHS, HEAVY FLOES OF POLAR PACK ICE CAN MAKE ORDINARY ICE-BREAKING METHODS INEFFECTIVE NORTH OF KAP MOSTING. INSTEAD, VESSELS MUST SEARCH OUT CLEAR WATER LEADS AND SLOWLY MAKE THEIR WAY THROUGH TWISTING CHANNELS TO REACH THE SHORE WATER. IN THE NORTHERN PARTS, SHIPS USUALLY ENTER THE PACK WELL NORTH OF THEIR INTENDED LANDFALL TO ALLOW FOR THE SOUTHWARD SET OF THE CURRENT SHOULD THEY BECOME TEMPORARILY BESET BY ICE DURING THE PASSAGE. HOWEVER, FROM KANGERDLUGSSUAQ SOUTHWARD IT IS GENERALLY WISER TO MAKE A MORE SOUTHERLY APPROACH BECAUSE OF THE GREATER FREQUENCY OF OPEN LEADS IN THAT DIRECTION. THIS METHOD IS ESPECIALLY APPLICABLE TO THE ROUTE INTO ANGMAGSSALIK WHERE VESSELS ARRIVING IN THE SHORE WATER FROM A SOUTHERLY INBOUND COURSE MAY TAKE ADVANTAGE OF THE NORTHWARD SHORE EDDY AND ALSO AVOID THE FLOES AROUND KAP DAN.

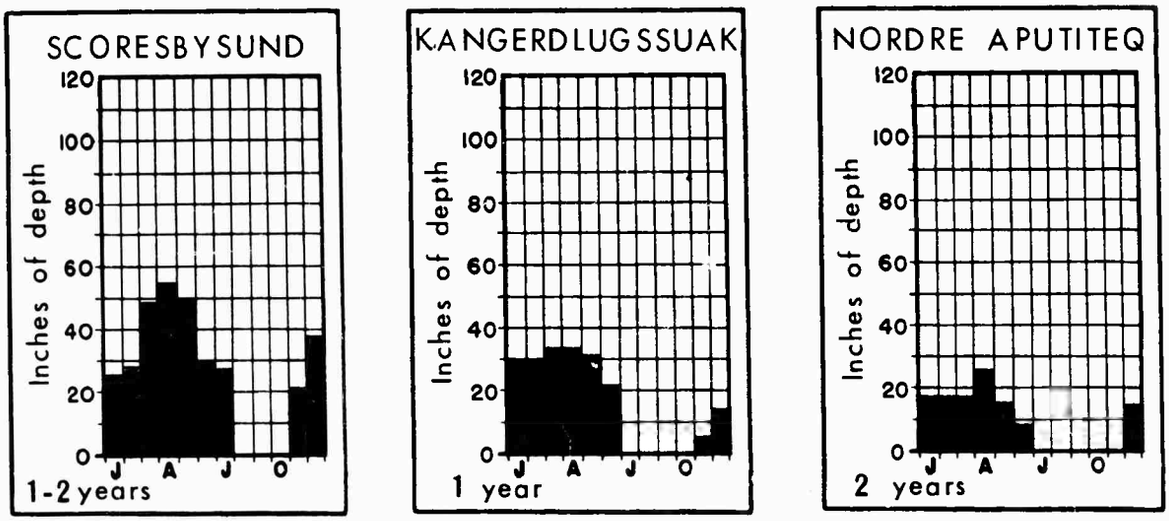
IN THE WATERS SOUTH OF KAP CORT ADELAER, FOR MOST OF THE PERIOD BETWEEN MID-JUNE AND EARLY JANUARY, UNREINFORCED VESSELS CAN USUALLY NAVIGATE SUCCESSFULLY USING PROPER ICEBERG LOOKOUT PRECAUTIONS. ALONG THIS SOUTHERNMOST COAST THE PACK ICE ALL BUT DISAPPEARS DURING THE AUTUMN.

ASIDE FROM THE PACK ICE THERE IS ALSO WINTER (I.E., SEASONAL) ICE ALONG THE SHORE. THIS CONSISTS OF FIORD ICE, WHICH USUALLY MELTS IN PLACE, AND LAND-FAST WINTER SEA ICE BETWEEN THE PACK AND SHORE. THE WINTER SEA ICE GENERALLY FLOATS FREE IN LARGE RAFTS BEFORE MELTING. SHORT-PERIOD PORT RECORDS INDICATE THAT WINTER ICE ATTAINS ITS GREATEST THICKNESS IN APRIL (FIG. 8). EXAMPLES ARE: ABOUT 54 INCHES AT SCORESBYSUND, 26 INCHES AT NORDRE APUTITÊQ, 36 INCHES AT ANGMAGSSALIK, AND 44 INCHES AT TINGMIARMIUT. LONG BEFORE IT BECOMES POSSIBLE TO NAVIGATE THE EAST GREENLAND PACK, THE WINTER ICE HAS ALREADY MELTED CLEAR OF MOST FIORDS AND BAYS. THE TIME OF THIS BREAKUP VARIES FROM EARLY JUNE AT PRINS CHRISTIANS SUND TO LATE JULY AT SCORESBYSUND.

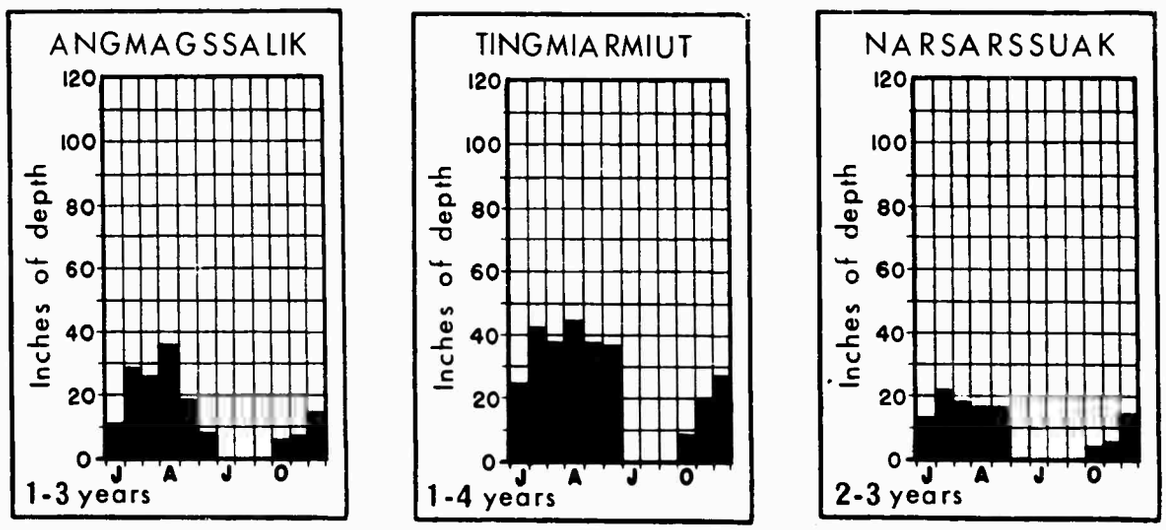
4. VEGETATION

THE PLANT COMMUNITIES OF SOUTHEAST GREENLAND CAN BE CLASSIFIED IN FIVE PHYTOGEOGRAPHICAL GROUPS. IN ORDER OF THEIR GREATER TO LESSER EXTENT OF DISTRIBUTION THESE ARE: (A) FELL FIELD, (B) SHRUB HEATH, (C) COPSE, (D) GRASS

MEAN MONTHLY SEA ICE THICKNESS (inches)



OFF NORTHERN STATIONS



OFF SOUTHERN STATIONS

FIGURE 8

AND HERB MEADOW, AND (E) MOORS AND MARSHES. THE NATURE OF THE FLORAL LANDSCAPE IS SOMEWHAT COMPLICATED BY A DIVERSITY OF WIND AND SUNLIGHT EXPOSURE, SEASONAL SNOW COVER, HUMIDITY, DRAINAGE, MOISTURE SUPPLY, AND ANGLE OF SLOPE. SUCH LOCAL COMPLEXITY DEFIES MAPPING AT THE SCALE USED IN THIS STUDY. INSTEAD, BROAD GENERALIZATIONS ON THE DISTRIBUTION OF THE FIRST THREE DOMINANT COMMUNITIES (A, B, AND C) ARE SHOWN ON FIGURE 9. AFTER THE FOLLOWING BRIEF SUMMARY OF THE FIVE PLANT GROUPS, THE PHYSIOGNOMIC ASPECTS OF EACH ARE DISCUSSED IN GREATER DETAIL.

PLANT COMMUNITY	FAVORED HABITAT	PRINCIPAL SPECIES	REMARKS
FELL FIELD	NUNATAKS NORTH OF 64°; LITTORAL NORTH OF 69°; SHALLOW SOILS; HIGHER SLOPES TO SNOWLINE; ON BEDROCK OUTCROPS; AREAS OF POOR SNOW COVER; WINDY EXPOSURES; LOWEST ON NORTH SLOPES	LICHENS, MOSSES, BILBERRY, LAUREL, DWARF WILLOW, CROWBERRY, HARDY HERBS AND GRASSES	GRAY OR GRAYISH-BROWN MAT; SOLITARY PLANTS OR SCATTERED PATCHES; 2 TO 3 INCHES TALL; GOOD TRAFFICABILITY ON GENTLE SLOPES; VERY LITTLE FUEL VALUE
SHRUB HEATH	COMMON BETWEEN 62° AND 68°N; LOWER ELEVATION; SOUTH SLOPES; GRAVELLY SOILS; GOOD DRAINAGE; AT LEAST 5° SLOPE; IN AREAS OF GOOD SNOW COVER	LICHENS, MOSSES, BILBERRY, LAUREL, WILLOW, CROWBERRY, SOME BIRCH AND JUNIPER IN SOUTHERNMOST RANGE	DARK BROWN CONTINUOUS CARPET, SHRUBS 6 TO 10 INCHES TALL; PROSTRATE BRANCHES; EDIBLE BERRIES; FAIR TRAFFICABILITY; COOKING FUEL
COPSE	GOOD, GENTLY SLOPING SOILS IN SOUTHERN VALLEYS; MOST COMMON SOUTH OF 62°N; VERY SHELTERED SPOTS AS FAR AS 70°N; OUTWASH GRAVEL, ALLUVIA, AND MORAINES; AREAS WITH GOOD SNOW COVER, STEADY MOISTURE AND MUCH SUNLIGHT	WILLOWS, JUNIPER, MOUNTAIN ASH, ALDER, BIRCH; UNDERGROWTH OF MOSSES, LICHENS, GRASSES, HORSETAILS, AND FERNS. TYPES OF UNDERGROWTH VARY WITH THE PRINCIPAL COPSE SPECIES.	GREEN TURNING TO BROWN AND YELLOW IN AUTUMN (JUNIPER IS EVERGREEN); WIDELY-SPACED CLUMPS; AVERAGE 8 FEET TALL IN THE SOUTH, KNEE-HIGH IN THE NORTH; GOOD LOCAL CONCEALMENT; POOR TRAFFICABILITY, BUT CAN BE AVOIDED; GOOD FUEL
GRASS & HERB MEADOW	SHELTERED SITES SOUTH OF 62°N; SOUTH SLOPES, GRAVEL AND ALLUVIA; ON WARM UPLAND TERRACES OR AT HEADS OF FIORDS; ON REFUSE HEAPS AND BIRD ROOKERIES NORTH OF 62°	GRASSES, SEDGES, ARCTIC POPPY, BELLFLOWER, SAXIFRAGE, CINQUEFOIL, FLEABANE, HORSETAILS, CHICKWEED, KNOTWEED AND FERNS	GREEN WITH SHOWY BLOOMS; YELLOWISH-GRAY IN AUTUMN; SMALL MEADOWS OR PATCHES; KNEE-HIGH IN THE SOUTH; GOOD TRAFFICABILITY ON GRAVEL, POOR ON ALLUVIA; NO FUEL VALUE
MOORS & MARSHES	WET SOILS; STREAM AND POND BANKS, BOGS, SALT FLATS; LOW, HUMMOCKY GROUND. LIMITED IN SIZE AND DISTRIBUTION	GRASSES, SEDGES, RUSHES, LOUSEWORT, LADIES MANTLE, BUTTERCUP, PEAT MOSS	BRIGHT GREEN IN SUMMER, BROWN IN AUTUMN; DENSE, LUSH GROWTH; POOR TO IMPASSIBLE TRAFFICABILITY; POOR CONCEALMENT; NO FUEL

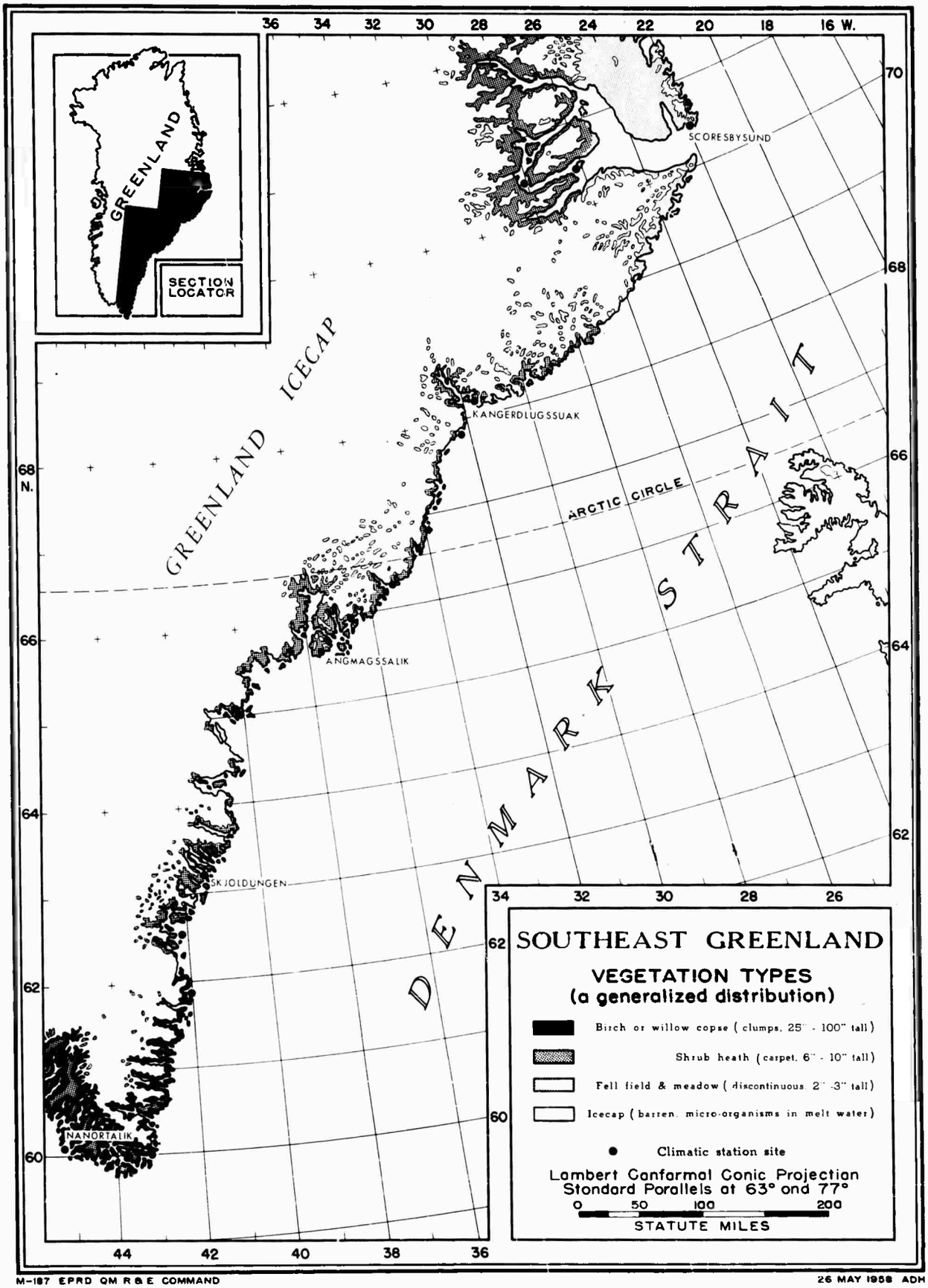

GREENLAND
SECTION LOCATOR
SCORESBYSUND
KANGERDLUGSSUAK
GREENLAND ICECAP
ARCTIC CIRCLE
DENMARK STRAIT
ANGMAGSSALIK
SKJOLDUNGEN
NANORTALIK
SOUTHEAST GREENLAND
VEGETATION TYPES
(a generalized distribution)
Birch or willow copse (clumps, 25" - 100" tall)
Shrub heath (carpet, 6" - 10" tall)
Fell field & meadow (discontinuous 2" -3" tall)
Icecap (barren, micro-organisms in melt water)
Climatic station site
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
36 34 32 30 28 26 24 22 20 18 16 W.
70
68
66
64
62
60
68 N.
44 42 40 38 36
34 32 30 28 26
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 9

A. Fell* field

Fell field is a mixture of the hardier, dwarf members of several plant groups. Its usual appearance is that of a gray or grayish-brown mat of low plants, seldom over 2 or 3 inches tall, growing singly or in widely scattered patches. Almost nowhere in the fell field is the ground completely covered for any considerable area.

Mosses and lichens predominate. Next most numerous are dwarf, woody shrubs such as crowberry, willows, laurel, and bilberry. Many of these are evergreen varieties. Intermixed in the fell field are occasional flowering herbs including arctic poppy, bellflower, saxifrage, cinquefoil, mountain sorrel, fleabane, chickweed, and knotweed. Also present, but less numerous, are grasses, sedges, rock ferns, and horsetails.

Fell field occurs in the most marginal of growth conditions where taller or more sensitive plants cannot survive. It is the characteristic cover of high latitudes and high elevations and is therefore typical of nunatak flora, particularly north of the 64th parallel. It is the dominant vegetation type on the littoral throughout Jameson Land, the shores of inner Scoresby Sund, Volquart Boons Kyst, and the Blosseville Kyst north of about the 69th parallel. South of 69° N. latitude, fell field is confined to nunataks, areas of poor snow cover, bedrock outcrops, lower north-facing slopes, other slopes to snowline**, and windy exposures on islands, headlands, and fiord walls.

A modified fell-field type exists along shorelines which are subjected to frequent fogs, salt spray, or high winds; this results in further stunting and species selection. Such habitats are common to headlands, small offshore islands, and strands. The great variability of these inhospitable sites makes any attempt to form a special classification for the vegetation growing on them too involved to be of practical value here.

B. Shrub heath

Shrub heath grows as a fairly continuous dark brown carpet composed of essentially the same shrubs as found in fell field. Better soil and exposure conditions in heath habitats permit plants to reach an average height of 6 to 10 inches. Prostrate branches of heath shrubs grow many times longer than their height. Beneath the shrub layer is an undergrowth of mosses, lichens, and occasional grasses or sedges. In warmer locations of the southern coast, birches and junipers are part of the shrub heath community.

---

* Essentially barren hills (from old Scottish, "hill or low mountain")

** South of Angmagssalik, snowline in summer averages about 3,000 feet, but is less than 1,000 feet north of Kangerdlugssuaq.

HEATH SHRUBS FAVOR LOWER LATITUDES AND LOWER ELEVATIONS THAN FELL FIELD. THEIR PRINCIPAL HABITATS ARE SHELTERED SOUTH SLOPES ON GRAVEL SOILS WITH GOOD DRAINAGE (AT LEAST 5-DEGREE SLOPE). SHRUB HEATH IS THE DOMINANT VEGETATION TYPE BETWEEN 62 AND 68° N. LATITUDE.

c. Copse

CLUMPS OF UPRIGHT SHRUBS STANDING ABOVE THE SURROUNDING VEGETATION ARE CALLED COPSES. MOST SHRUBS WHICH FORM COPSE IN GREENLAND ARE DECIDUOUS. THEIR SUMMER COLOR IS GREEN, TURNING TO YELLOW AND BROWN BEFORE LOSING THEIR FOLIAGE IN AUTUMN.

THE MOST COMMON COPSE IN SOUTHEAST GREENLAND IS FORMED BY WILLOWS. IN SOUTHERNMOST FIORDS, RELATIVELY GOOD SOILS ON MORAINES AND OUTWASH DEPOSITS PRODUCE WILLOW COPSES WHICH AVERAGE ABOUT 8 FEET TALL, AND OCCASIONALLY ATTAIN TWICE THAT HEIGHT. OTHER COPSE SHRUBS ARE BIRCH, ALDER, MOUNTAIN ASH, AND JUNIPER. BIRCH COPSE IS THE SMALLEST AND RAREST FORM IN THE REGION AND SELDOM EXCEEDS THE HEIGHT OF A MAN. IT GROWS ON DRIER SOILS OF THE LONGER SOUTHERN FIORDS SUCH AS TASERMIUT FJORD. A RICH GROUND COVER OF MOSS, MOLD, FERNS, AND HORSETAILS GROWS BENEATH WILLOW COPSES. GRASSES AND LICHENS PREDOMINATE UNDER THE BIRCH COPSES.

COPSE GROWS IN SCATTERED CLUMPS IN AREAS OF STEADY MOISTURE SUPPLY, GOOD SNOW COVER, AND CONSIDERABLE SUMMER WARMTH. THEREFORE, ALL BIRCH AND JUNIPER COPSES, AS WELL AS OTHER MORE LUXURIANT SPECIES, ARE FOUND WELL SOUTH OF 62° N. LATITUDE IN SOUTHEAST GREENLAND. LOW WILLOW COPSES ARE FOUND IN ESPECIALLY FAVORABLE SPOTS AMONG THE HEATH COMMUNITIES AND EVEN IN FELL FIELD AS FAR NORTH AS THE SCORESBYSUND SETTLEMENT, BUT THESE OCCURRENCES ARE RARE.

IN GREENLAND THERE ARE NO SOLID STANDS OF COPSE SUCH AS THE WILLOW COPSE IN THE ALASKAN UPLANDS. INSTEAD, ISOLATED CLUMPS, SELDOM LARGER THAN 150 SQUARE YARDS, ARE THE RULE. THE DWARF COPSES IN THE SCORESBYSUND VICINITY ARE ONLY A FEW SQUARE FEET IN AREA. THOUGH MOST COPSES ARE FOUND AT LOW ELEVATIONS IN SHELTERED VALLEYS, JUNIPER COPSES OCCUR UP TO AN ELEVATION OF ABOUT 1,000 FEET IN THE UPLANDS AROUND KAP FARVEL.

d. Grass and herb meadow

COMMUNITIES OF GRASSES AND HERBS, USUALLY ASSOCIATED WITH SHRUB HEATH, OCCUR WIDELY THROUGHOUT THE LITTORAL OF SOUTHEAST GREENLAND. THEIR TYPICAL SUMMER COLOR IS GREEN, SPECKLED WITH THE YELLOWS AND PINKS OF HERBACEOUS BLOSSOMS. BY LATE SUMMER THEY TURN YELLOWISH GRAY. IN THE NORTH, GRASS AND HERB GROWTH, SELDOM ABOVE A MAN'S KNEES, IS LIMITED TO SCATTERED TUFTS IN VALLEY BOTTOMS. IN THE SOUTHERN ARCHIPELAGO, GRASS MEADOWS COMMONLY COVER SEVERAL ACRES AND GROW WAIST HIGH.

Preferred habitats for grass and herb meadows are south-facing gravel slopes at the heads of fiords, alluvial valley bottoms, and some upland terraces in the warmer exposures of the southern archipelago. Normally grasses and herbs require somewhat more shelter than shrub heath, but even in the Scoresby Sund area they will survive in unusually fertile situations such as settlement refuse heaps and bird rookeries.

e. Moors and marshes

The final group of plants is the broad class that grows on very wet soils or soils subject to periodic flooding. Although several diverse ecological situations are represented in this category, most are typified by bright green, broad-leaved plants, rushes, sedges, and sometimes peat moss growing on low-lying, hummocky ground.

Common plants of the fresh water communities, which are most numerous, include lousewort, ladies mantle, and buttercup. They are found in small colonies in all parts of the ice-free southeast littoral. Salt marshes are not common in Southeast Greenland.

5. Climate*

a. Atmospheric pressure and surface winds

Southeast Greenland weather is dominated by a succession of cyclonic disturbances or low pressure areas, the centers of which normally pass south of Kap Farvel along a northeasterly trajectory toward Iceland. These depressions are most intense during the winter months, bringing unsettled weather, greater frequency of strong winds, and increased precipitation to the southeast littoral. Relatively low average pressures persist throughout the entire year, giving rise to the term, "Icelandic Low."

The mean position of the Icelandic Low center in winter lies over the ocean at about 62° N. latitude, 38° W. longitude. In January, the mean barometric pressure of the center is less than 995 millibars (29.38 inches). In spring, the mean central position of the "low" migrates southwestward around Kap Farvel. During the spring movement the low pressure area shrinks and weakens until, by July, lowest mean pressure, centered over southern Baffin Land, is no lower than 1007 millibars (29.74 inches).

The low begins to re-form over Davis Strait in autumn, deepening as it returns eastward. In October the mean position of the low is centered over the South Greenland Icecap in the vicinity of latitude 62° N.; by January,

*Climatic tables are given in the Appendix.

THE MIGRATORY PRESSURE CYCLE IS COMPLETED. THROUGHOUT THE SEASONAL SHIFT OF THE LOW, PRESSURES REMAIN RELATIVELY LOW ALONG THE SOUTHEAST GREENLAND LITTORAL. ONLY AS FAR NORTH AS SCORESBYSUND DOES THE MEAN MONTHLY PRESSURE EXCEED 1016 MILLIBARS (30 INCHES), AND THIS ONLY DURING MAY.

PREVAILING SURFACE WINDS OVER THE SEAS OFF GREENLAND'S SOUTHEAST COAST ARE GENERALLY NORTHEASTERLY (FIG. 6), CONTROLLED BY COASTAL PRESSURE GRADIENTS, THE ORIENTATION OF DENMARK STRAIT, AND THE POSITION OF THE LOW PRESSURE CENTER TO THE SOUTH. WIND DIRECTION OVER DENMARK STRAIT REMAINS RELATIVELY CONSTANT THROUGHOUT THE YEAR.

SURFACE WINDS ON THE SOUTHEAST LITTORAL ARE DETERMINED BY THE PROXIMITY OF THE INLAND ICECAP AND LOCAL PECULIARITIES OF SLOPE EXPOSURE. ABNORMALLY STEEP TEMPERATURE GRADIENTS PRODUCED BY THERMAL CONTRAST BETWEEN THE INLAND ICE AND THE SEA ARE CHARACTERISTIC OF THE ICECAP MARGIN. THE RATHER ABRUPT PRESSURE GRADIENT RESULTING FROM THIS THERMAL IMBALANCE ACCELERATES THE OUTWARD FLOW OF SUBSIDING INLAND AIR AND IS RESPONSIBLE FOR RELATIVELY STRONG KATABATIC (GRAVITATIONAL) WINDS. THE SPEED OF KATABATIC FLOW DEPENDS UPON THE STEEPNESS OF THE SURFACE SLOPE, THE THERMAL CONTRAST BETWEEN RELATIVELY STABLE SURFACE AIR AND THE WARMER AIR ALOFT, AND THE REGIONAL PRESSURE GRADIENTS.

KATABATIC (**DOWNS**LOPE) WINDS TEND TO BE STRONGEST IN THE EARLY MORNING WHEN THE VERTICAL TEMPERATURE GRADIENT IS GREATEST, AND WEAKEST IN THE AFTERNOON WHEN TEMPERATURE DIFFERENCES ARE SMALLEST. THEY ARE ALSO STRONGER ON CLEAR DAYS WHEN INLAND TEMPERATURES ARE BELOW NORMAL. DIURNAL FLUCTUATIONS ARE, OF COURSE, NOT AS NOTICEABLE DURING THE SHORT DAYLIGHT PERIODS OF WINTER (MID-WINTER DURATION OF SUNLIGHT ALONG THE SOUTHEAST LITTORAL VARIES FROM ABOUT 6 HOURS AT PRINS CHRISTIANS SUND TO NO DIRECT SUNLIGHT AT ALL NORTH OF KANGERDLUGSSUAK).

DOWNSLOPE WINDS ARE FURTHER MODIFIED, BOTH IN DIRECTION AND INTENSITY, BY THE SIZE AND ORIENTATION OF FIORD VALLEYS ALONG THE COAST. FIORD CHANNELED WINDS OF MODERATE INITIAL VELOCITY FREQUENTLY REACH WHOLE-GALE AND EVEN HURRICANE FORCE BY THE TIME THEY ARRIVE AT THE COAST. ONCE CLEAR OF LAND, THESE OFFSHORE WINDS ARE DEFLECTED BY AND JOIN THE PREVAILING SOUTHWARD FLOW. THE INTERPLAY OF THESE TWO **WINDSTREAMS** AND THE COMPLEXITY OF COASTAL LANDFORMS MAKE LOCAL WINDS HIGHLY VARIABLE ALONG THE SOUTHEAST LITTORAL.

PERIODICALLY, WHEN PRESSURE DISTURBANCES ARE FAVORABLE FOR EASTWARD FLOW ACROSS THE ICECAP, THE KATABATIC WINDS ON THE EAST COAST ARE REINFORCED. THE CONDITIONS ARE MORE PREVALENT IN WINTER, DURING WHICH TIME FREQUENT FOEHN WINDS BLOW STRONGLY DOWN EASTERN COASTAL VALLEYS.

THE "FOEHN" WIND IS AN OROGRAPHIC PHENOMENON WHICH PRODUCES A RELATIVELY WARM, DRY, LEE-SLOPE FLOW. AIR FLOWING UP THE WESTERN SLOPE OF THE ICECAP IS COOLED IN ITS ASCENT AT THE DRY ADIABATIC LAPSE RATE OF 1 CENTIGRADE DEGREE

EVERY 100 METERS UNTIL, NOT FAR INLAND, DEWPOINT IS REACHED AND CONDENSATION OCCURS. FOR THE REMAINDER OF ITS ASCENT, THE AIRMASS COOLS AT THE WET ADIABATIC RATE OF ABOUT 1 CENTIGRADE DEGREE EVERY 200 METERS. AFTER PASSING OVER THE CREST OF THE ICECAP, THE DRIED AIR DESCENDS THE LEEWARD SLOPE, THROUGHOUT WHICH PERIOD IT WARMS AT THE DRY ADIABATIC RATE (ROUGHLY TWICE THE RATE AT WHICH IT COOLED DURING MOST OF ITS PASSAGE UP THE WINDWARD SLOPE). THIS RAPIDLY WARMING FOEHN WIND IS RESPONSIBLE FOR SHORT-PERIOD WINTER THAWS ALONG THE SOUTHEAST COAST.

UPSLOPE WINDS ARE INFREQUENT IN MOST OF THE SOUTHEAST REGION, (BUT THERE IS A MONSOONAL OR SEASONAL REVERSAL OF PREVAILING WINDS WEST OF KAP FARVEL). WHILE THE ICELANDIC LOW REMAINS STRONG OFF THE EAST COAST IN WINTER, NORTHERLY KATABATIC WINDS PREVAIL OFF THE ICECAP IN THE SOUTHERNMOST FIORDS. THIS OUTFLOW IS STRENGTHENED BY NORTHERLY WINDS ALONG BOTH THE EAST AND WEST COASTS; THESE WINDS CONVERGE SOUTH OF THE ISLAND. WHEN THE PRESSURE GRADIENT WEAKENS IN SPRING THE OUTFLOWING WINDS ALSO DIMINISH. AS THE LOW CENTER PASSES WEST OF KAP FARVEL, WINDS CIRCULATING ABOUT THE LOW BEGIN TO BLOW FROM A SOUTHERLY QUADRANT IN THE NANORTALIK AREA. THESE WINDS ARE STRONGER THAN THE SUMMER KATABATIC FLOW AND CONTINUE TO PREVAIL ONSHORE FROM APRIL TO OCTOBER. FOR PART OF THIS PERIOD, THERE IS LIKELY TO BE A DIURNAL REVERSAL OR "SEA-BREEZE EFFECT" ONSHORE ALL DAY, AND THEN OFFSHORE FOR A FEW HOURS AT NIGHT WHEN THE KATABATIC FLOW IS STRENGTHENED.

ANNUAL PERCENTAGES OF OCCURRENCE OF WINDS FROM VARIOUS DIRECTIONS ARE GIVEN FOR SELECTED STATIONS IN THE FOLLOWING TABULATION.

STATION	YEARS OF RECORD*	WIND DIRECTION (%) N	NE	E	SE	S	SW	W	NW	CALM
SCORESBYSUND	17	9.5	29.0	2.0	4.0	5.4	2.7	4.7	6.5	36.2
ANGMAGSSALIK	17	7.1	10.9	9.3	4.4	7.9	9.3	9.3	5.9	35.9
NANORTALIK	16	28.4	12.5	0.2	0.7	8.6	5.0	21.6	11.5	11.5

*PERIOD FROM 1925 THROUGH 1941 (1940 MISSING AT NANORTALIK)

GENERALLY SPEAKING, COASTAL WINDS OF SOUTHEAST GREENLAND DO NOT CONFORM WITH SYNOPTIC PRESSURE PATTERNS BECAUSE THE ICECAP AND COASTAL LANDFORMS ARE MORE IMPORTANT CONTROLLING FACTORS. WINDS ARE FREQUENTLY MORE SEVERE THAN THE NORMAL PRESSURE PATTERNS FOR THESE LATITUDES WOULD INDICATE. MAXIMUM WINDSPEEDS CAN REACH FRESH GALE FORCE (39 MPH) ON ANY PART OF THE SOUTHEAST COAST DURING ANY SEASON OF THE YEAR. IN ALL BUT THE MOST SHELTERED LOCATIONS, HURRICANE FORCE WINDS (73 MPH) CAN OCCUR DURING WINTER OR SPRING AND GUSTS OF 115 MILES PER HOUR HAVE BEEN RECORDED AT ATTERBURY DOME AND KAP DAN.

THERE IS A GRADUAL INCREASE IN MEAN ANNUAL WINDSPEED FROM NORTH TO SOUTH (SEE TABLE X). MEAN ANNUAL WINDSPEED AT SCORESBYSUND IS LESS THAN

4 MILES PER HOUR; AT NANORTALIK IT IS 9.5 MILES PER HOUR (FIG. 10). THIS LATITUDINAL PATTERN IS REVERSED FOR FREQUENCY OF GALES. SCORESBYSUND HAS AN ANNUAL AVERAGE OF 79.8 DAYS WITH GALES, WHEREAS NANORTALIK AVERAGES ONLY 16.4 DAYS WITH GALES ANNUALLY (FIG. 11). AS A RULE, CALMS OCCUR MOST OFTEN DURING LATE SUMMER AND LEAST OFTEN IN LATE WINTER (FIG. 12).

SINGLE-YEAR RECORDS AVAILABLE FOR COMMANCHE BAY AND ATTERBURY DOME SUGGEST A LOCAL ANOMALY IN MEAN ANNUAL WINDSPEED ON THAT SECTION OF THE COAST OR ELSE THE WINDS THERE WERE ABNORMALLY HIGH DURING THE BRIEF OPERATION OF THE STATION. MEAN ANNUAL WINDSPEEDS AT THESE STATIONS WERE 14.0 AND 15.4 MILES PER HOUR, RESPECTIVELY. THESE HIGH AVERAGES ALSO ACCOUNT FOR THE HIGHEST MEAN WINDCHILL VALUES ANYWHERE ALONG THE SOUTHEAST COAST.

THE ANNUAL DISTRIBUTION OF MEAN WINDCHILL VALUES* IS SHOWN ON FIGURE 10 AND TABLE XI. IT IS CLEAR FROM THE SIMILARITY OF ANNUAL CYCLES AND A COMPARISON OF MEAN ANNUAL WINDCHILL VALUES THAT THERE IS NOT MUCH VARIATION AMONG STATIONS (EXCEPT FOR THE ANOMALIES AT COMMANCHE BAY AND ATTERBURY DOME) AND NO OBVIOUS LATITUDINAL TREND. THIS IS BECAUSE BOTH MEAN WINDSPEEDS AND MEAN TEMPERATURES INCREASE IN THE SAME (SOUTHWARD) DIRECTION AND WINDCHILL VALUES THEREFORE TEND TO EQUALIZE ALL ALONG THE COAST. EXCEPT FOR THE ANOMALIES CITED, MEAN ANNUAL WINDCHILL VALUES RANGE BETWEEN 750 AND 850 KG CAL/M^2/HR AMONG REPRESENTATIVE STATIONS IN SOUTHEAST GREENLAND. FOR COMPARISON, WITHIN THE SAME SPAN OF LATITUDE ON THE WEST COAST OF GREENLAND, MEAN ANNUAL WINDCHILL VALUES RANGE BETWEEN 600 AND 1,000 KG CAL/M^2/HR.

THE MONTH OF GREATEST MEAN WINDCHILL IS USUALLY FEBRUARY (FIG. 10), BUT CERTAIN STATIONS UNDER STRONG MARITIME INFLUENCE IN THE SOUTH HAVE MAXIMA WHICH ARE SLIGHTLY HIGHER IN JANUARY. THE SINGLE YEAR ON RECORD FOR KANGERDLUGSSUAK HAD A DECEMBER MAXIMUM. JULY NORMALLY HAS THE LOWEST MEAN WINDCHILL, BUT HERE AGAIN THE SOUTHERN MARITIME STATIONS DEVIATE, IN THAT LOWEST VALUES OCCUR IN AUGUST.

B. TEMPERATURE

MEAN ANNUAL TEMPERATURES RANGE BETWEEN 21 F AT SCORESBYSUND AND 34 F AT TORGILSBU AND PRINS CHRISTIANS SUND (FIG. 13 AND TABLE I). THE LATITUDINAL RATE OF CHANGE, 1.5 F DEGREES FOR EACH DEGREE OF LATITUDE, REMAINS VERY CONSTANT ALL ALONG THE SOUTHEAST LITTORAL. MEAN ANNUAL TEMPERATURES ON THIS COAST ARE ABOUT 1 F DEGREE WARMER THAN THOSE AT COMPARABLE LATITUDES ON THE SOUTHWEST COAST OF GREENLAND. ONLY THOSE STATIONS THAT LIE SOUTH OF THE 61ST PARALLEL AVERAGE ABOVE THE FREEZING POINT FOR THE YEAR; NORTH OF THE 62ND PARALLEL FREEZING TEMPERATURES CAN OCCUR DURING ANY MONTH. ANGMAGSSALIK AVERAGES ONLY 105 DAYS ANNUALLY WITH ALL TEMPERATURES ABOVE FREEZING, AND EVEN JULY HAS AN AVERAGE OF 4 DAYS WITH SUB-FREEZING TEMPERATURES RECORDED.

*SIPLE AND PASSEL FORMULA (15).

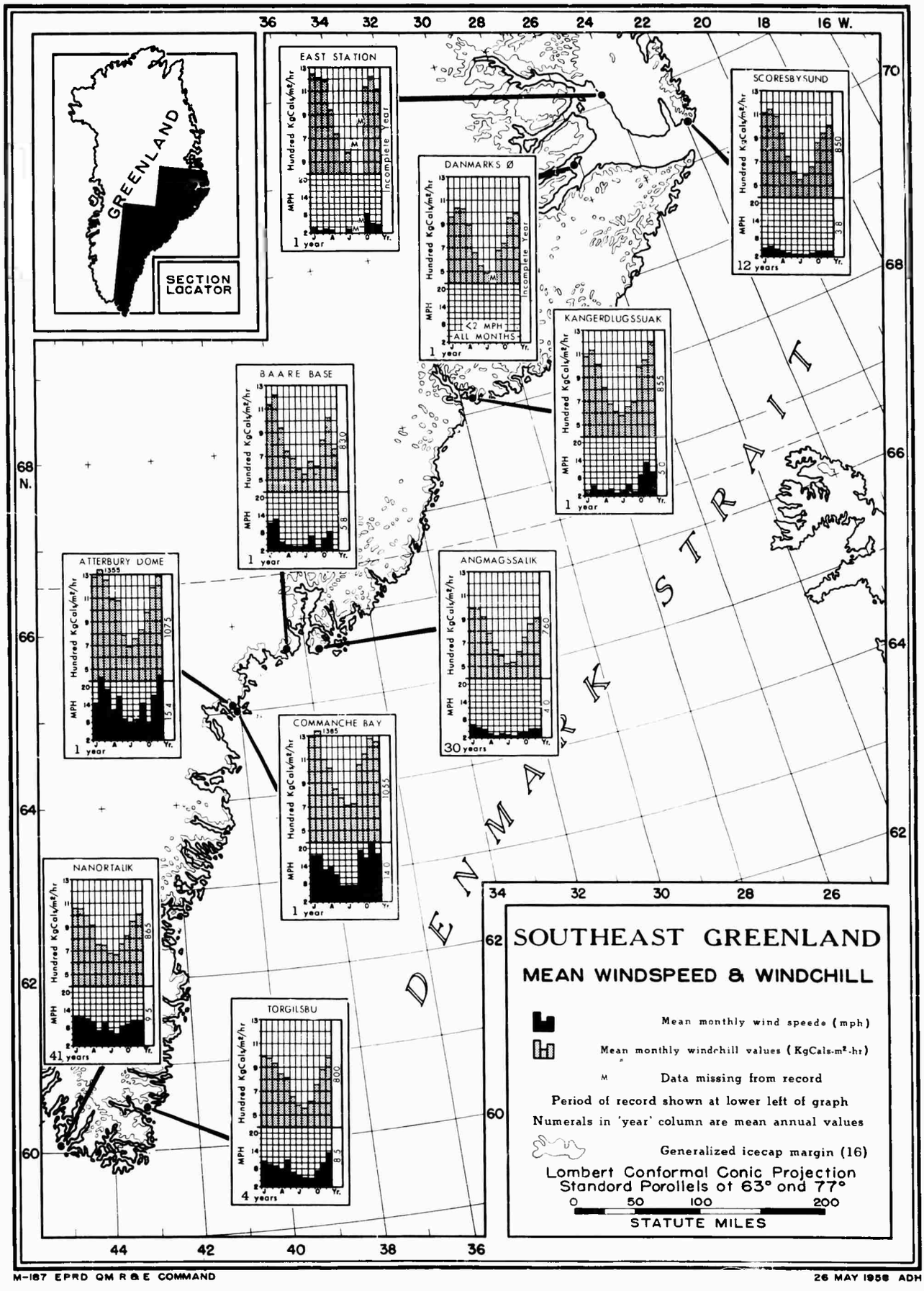

GREENLAND
SECTION LOCATOR
EAST STATION
1 year
DANMARKS Ø
1 year
SCORESBYSUND
12 years
KANGERDLUGSSUAK
1 year
BAARE BASE
1 year
ATTERBURY DOME
1 year
ANGMAGSSALIK
30 years
COMMANCHE BAY
1 year
NANORTALIK
41 years
TORGILSBU
4 years
DENMARK STRAIT
SOUTHEAST GREENLAND
MEAN WINDSPEED & WINDCHILL
Mean monthly wind speede (mph)
Mean monthly windchill values (KgCals-m²-hr)
M Data missing from record
Period of record shown at lower left of graph
Numerals in 'year' column are mean annual values
Generalized icecap margin (16)
Lombert Conformal Conic Projection
Standord Porollels ot 63° ond 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 10

MEAN NUMBER OF DAYS WITH GALES

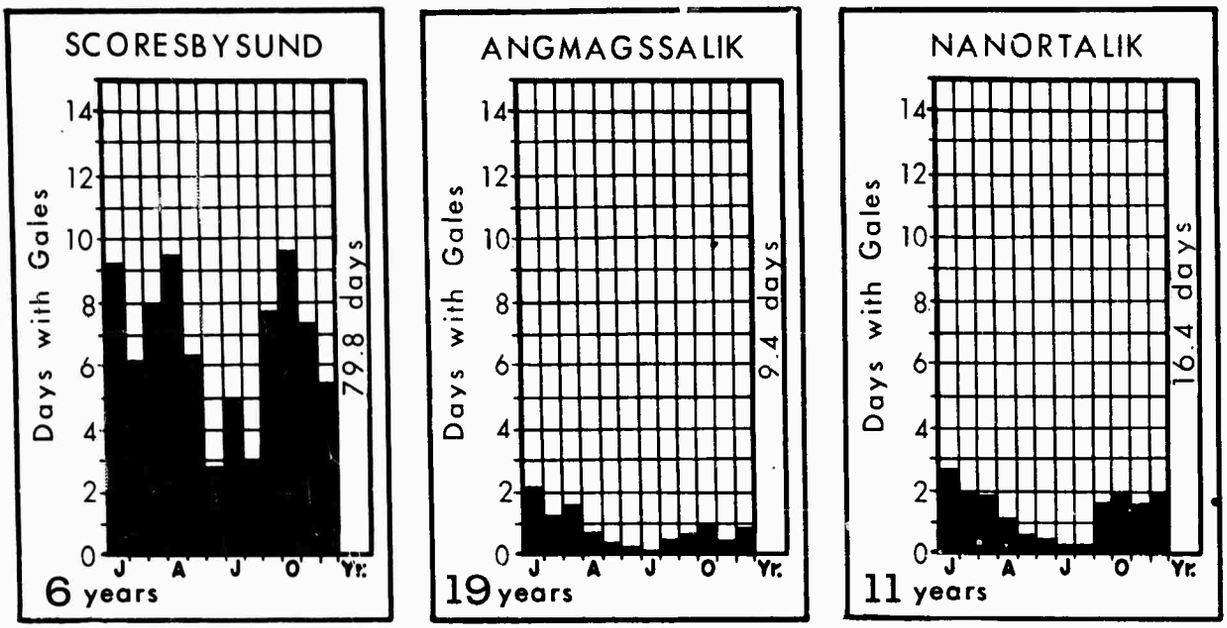


FIGURE 11

MEAN NUMBER OF DAYS WITH CALMS

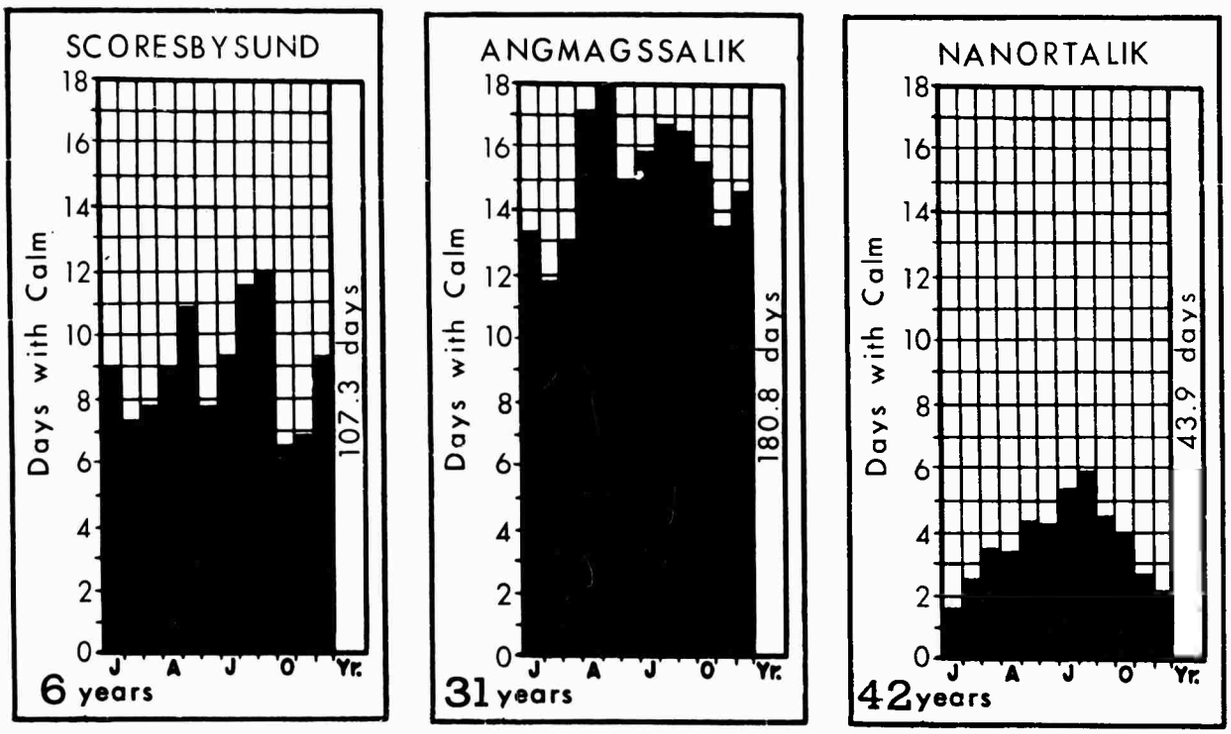


FIGURE 12

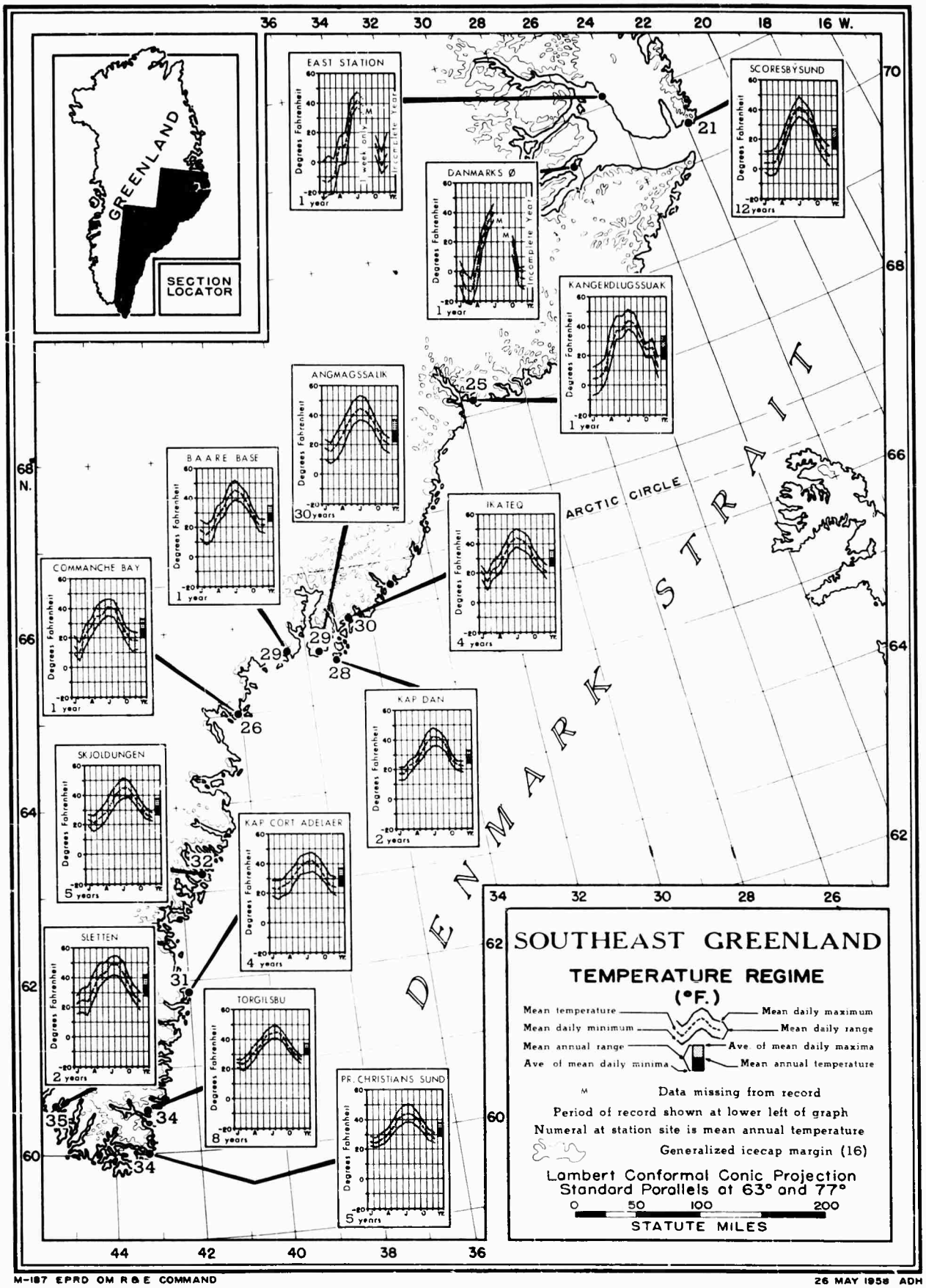

GREENLAND
SECTION LOCATOR
EAST STATION
DANMARKS Ø
SCORESBYSUND
KANGERDLUGSSUAK
ANGMAGSSALIK
BAARE BASE
IKATEQ
COMMANCHE BAY
KAP DAN
SKJOLDUNGEN
KAP CORT ADELAER
SLETTEN
TORGILSBU
PR. CHRISTIANS SUND
DENMARK STRAIT
ARCTIC CIRCLE
SOUTHEAST GREENLAND
TEMPERATURE REGIME
(°F.)
Mean temperature
Mean daily minimum
Mean annual range
Ave. of mean daily minima
Mean daily maximum
Mean daily range
Ave. of mean daily maxima
Mean annual temperature
M Data missing from record
Period of record shown at lower left of graph
Numeral at station site is mean annual temperature
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD OM R&E COMMAND
26 MAY 1958 ADH

FIGURE 13

Mean diurnal temperature variation is relatively small (See Table II). Mean daily maximum and minimum temperatures tend to follow the mean temperature cycle at an average amplitude of about 5 F degrees from the mean (Fig. 13 and Tables III and IV). For stations north of Angmagssalik, however, the amplitude increases to about 8 F degrees from the mean during the coldest month.

July and February are normally the warmest and coldest months, respectively. The mean temperature difference between them is greatest in the north (38 F degrees at Scoresbysund) and decreases at a rate of about 2 F degrees with each degree of latitude southward (21 F degrees at Torgilsbu). July mean temperatures vary only 6 F degrees among all stations (40 F at Danmarks Ø, 46 F at B.A.A.R.E. Base) while February means vary 38 F degrees (-14 F at East Station, 24 F at Prins Christians Sund). At any given station, there is considerable variation in winter month mean temperatures from year to year. For example, the mean temperature for January of one year may be 15 to 18 F degrees colder than that of another year.

The highest temperature on record for stations in Southeast Greenland is 78 F at Angmagssalik in June (Fig. 14 and Table V). All stations have registered at least 54 F. Nearly all station maxima have occurred in June or July. The lowest temperature on record for this region is -52 F (March) registered at Danmarks Ø during a single year of operation (See Table VI). At the southern end of the coast, Prins Christians Sund had no temperatures below 1 F during a 5-year period of record. Scoresbysund has recorded the widest range of extreme temperatures (116 F degrees between a July high of 69 F and a January low of -47 F) during 17 years of record (See Table VII). During January, Scoresbysund has had a range of 95 F degrees between absolute temperature extremes. The range between extremes decreases among more southerly stations.

Figure 15 shows the seasonal change of hourly temperature frequencies at four stations: Kap Tobin, Angmagssalik, and Tingmiarmiut on the outer coast, and Narsarssuak, well inland at the head of a long fiord just outside the study area. Some relationships which are revealed by these graphs deserve special comment. Maritime influence at the three coastal stations places their October temperatures in a significantly warmer range than their April temperatures. This shows an extension of winter cold into spring and a continuation of summer warmth into autumn. On the other hand, at Narsarssuak, October and April frequency curves are nearly identical. At Kap Tobin about 9 percent of July hourly temperatures, 95 percent of October temperatures, and nearly all January and April temperatures are at or below freezing. At Narsarssuak 85 percent of January temperatures, 45 percent of April temperatures, 35 percent of October temperatures, and no July temperatures are at or below freezing.

No reliable records are available to show the lapse rate of temperature inland, but expedition observers report a relatively sharp decrease

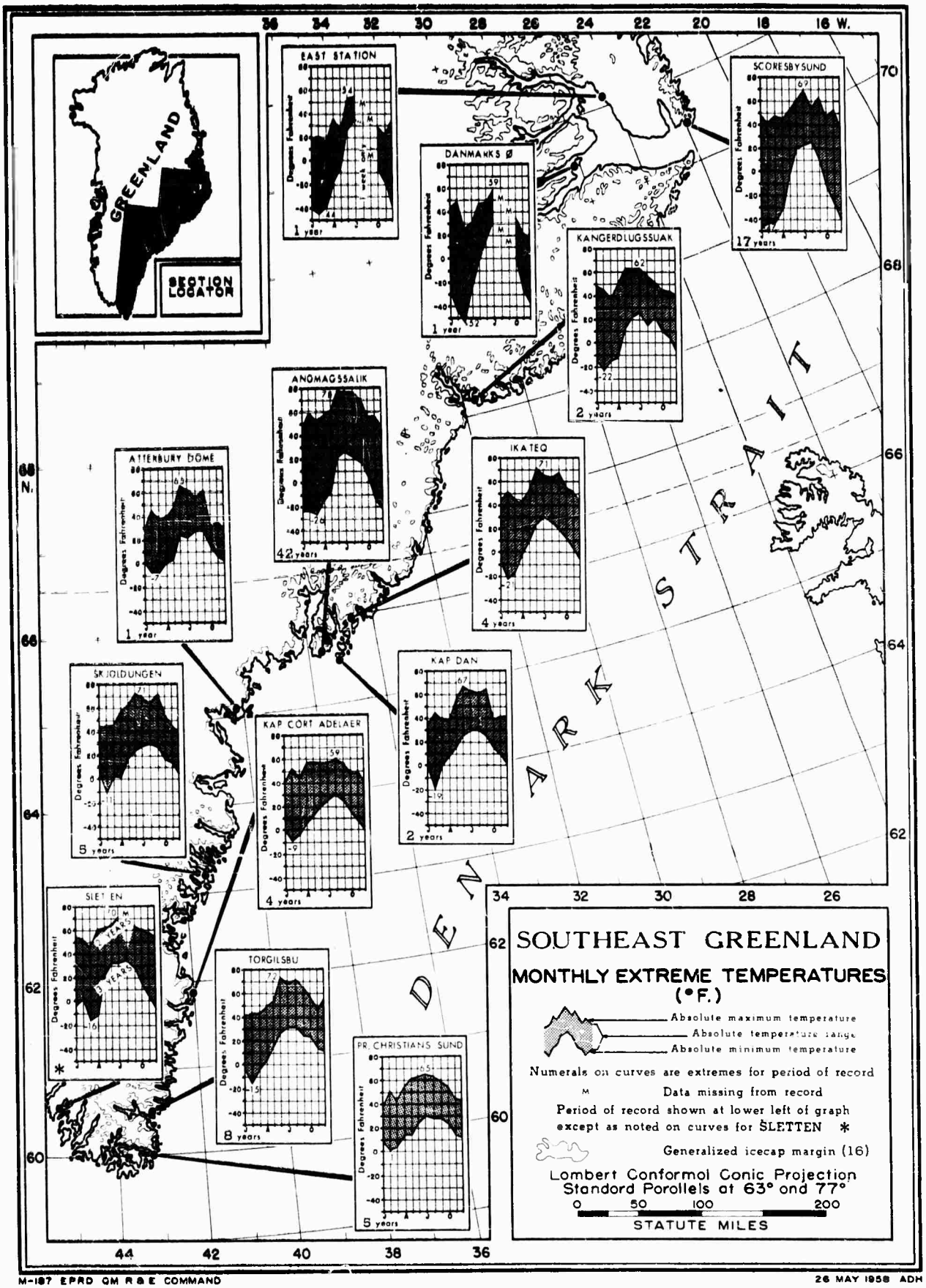
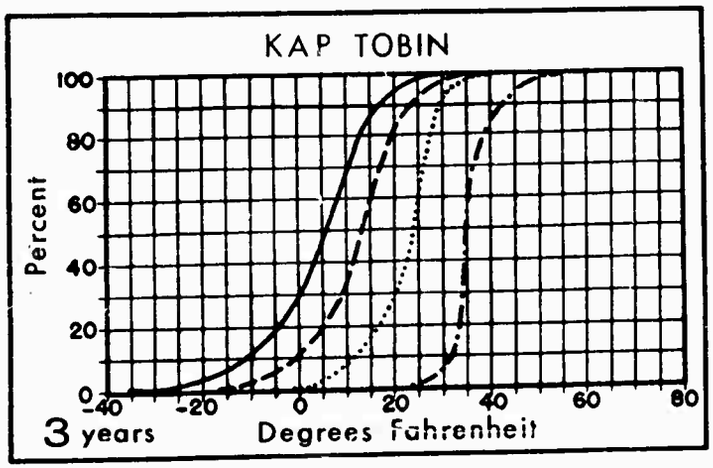
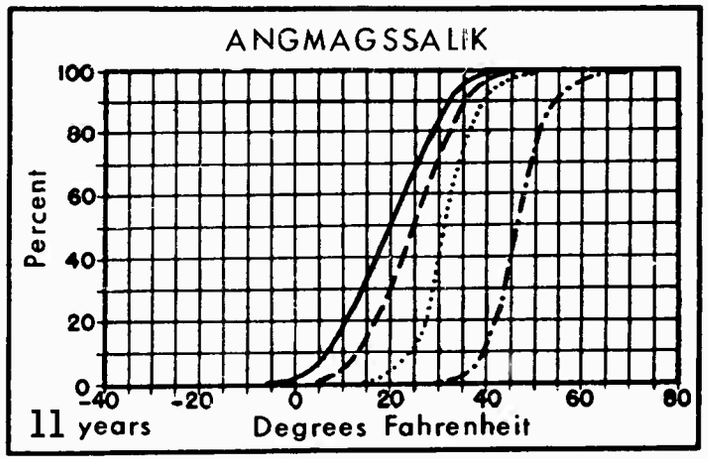
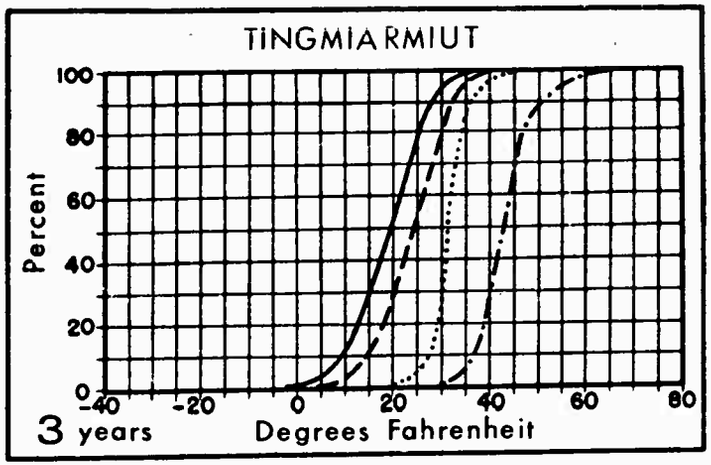

GREENLAND
SECTION LOCATION
EAST STATION
1 year
DANMARKS Ø
1 year
SCORESBYSUND
17 years
KANGERDLUGSSUAK
2 years
ANOMAGSSALIK
42 years
ATTERBURY DÖME
1 year
IKATEQ
4 years
KAP DAN
2 years
SKJOLDUNGEN
5 years
KAP CORT ADELAER
4 years
SLETTEN
TORGILSBU
8 years
PR. CHRISTIANS SUND
5 years
DENMARK STRAIT
Degrees Fahrenheit
SOUTHEAST GREENLAND
MONTHLY EXTREME TEMPERATURES
(°F.)
Absolute maximum temperature
Absolute temperature range
Absolute minimum temperature
Numerals on curves are extremes for period of record
M Data missing from record
Period of record shown at lower left of graph
except as noted on curves for SLETTEN *
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

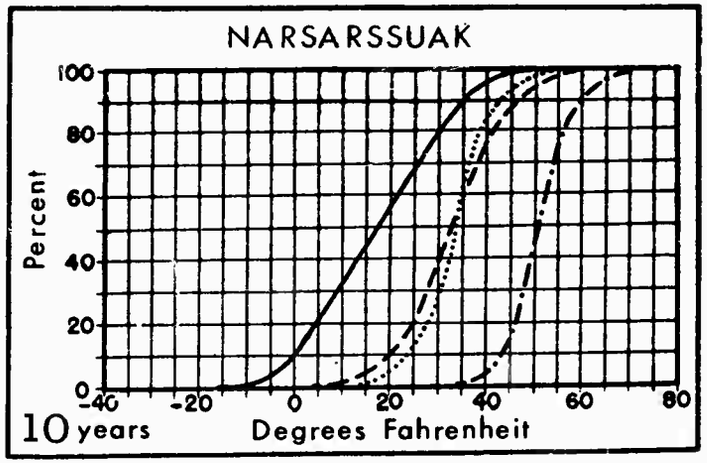
FIGURE 14

CUMULATIVE FREQUENCY OF HOURLY TEMPERATURES









January ——— April ---- July -·-·- October ·····

FIGURE 15

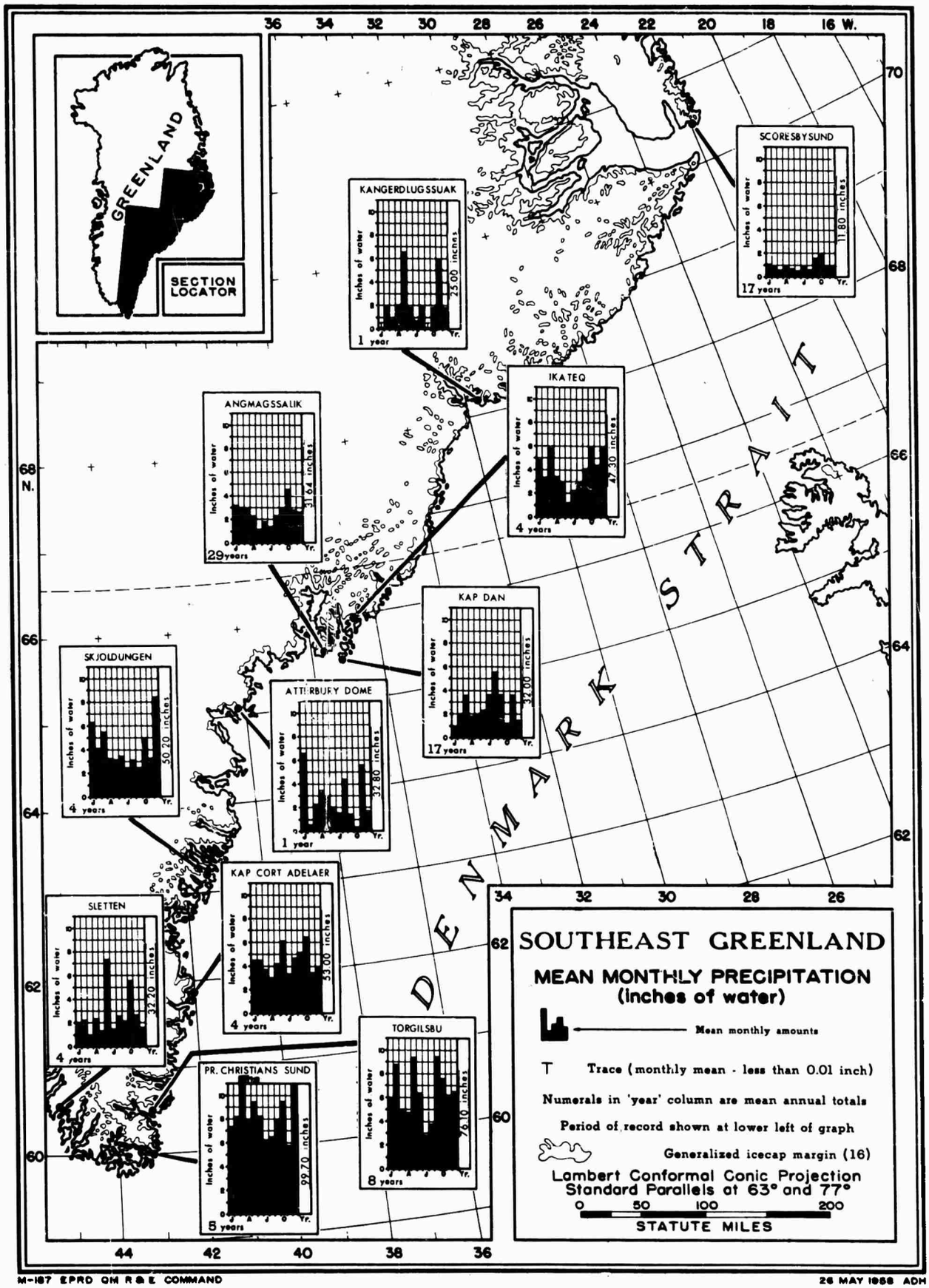

GREENLAND
SECTION LOCATOR
KANGERDLUGSSUAK
1 year
25.00 inches
SCORESBYSUND
17 years
11.80 inches
IKATEQ
4 years
47.30 inches
ANGMAGSSALIK
29 years
31.64 inches
KAP DAN
17 years
32.00 inches
SKJOLDUNGEN
4 years
50.20 inches
ATTERBURY DOME
1 year
32.80 inches
KAP CORT ADELAER
4 years
33.00 inches
SLETTEN
4 years
32.20 inches
TORGILSBU
8 years
76.10 inches
PR. CHRISTIANS SUND
5 years
99.70 inches
DENMARK STRAIT
SOUTHEAST GREENLAND
MEAN MONTHLY PRECIPITATION
(inches of water)
Mean monthly amounts
T Trace (monthly mean - less than 0.01 inch)
Numerals in 'year' column are mean annual totals
Period of record shown at lower left of graph
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD CM R&E COMMAND
26 MAY 1958 ADH

FIGURE 16

IN TEMPERATURE WITH INCREASED ELEVATION, REMOVAL FROM MARITIME EFFECT AND PROXIMITY TO THE ICECAP.

c. Precipitation

The most diverse element in the climate of Southeast Greenland is its precipitation. The southernmost part ranks high among the wettest places in the entire Subarctic, whereas northern parts receive scanty precipitation (Table XII). Prins Christians Sund, with 100 inches of annual precipitation, receives nine times as much as Scoresbysund and approximately 50 percent more than Torgilsbu, the second wettest Greenland station of reliable record (Fig. 16).

The area around Torgilsbu on Lindenows Fjord is occasionally subjected to unusually heavy downpours. During late January, 1939, 7.54 inches of rain and wet snow fell there within a 3-day period (30). This is about 10 percent of the total mean annual amount for that station.

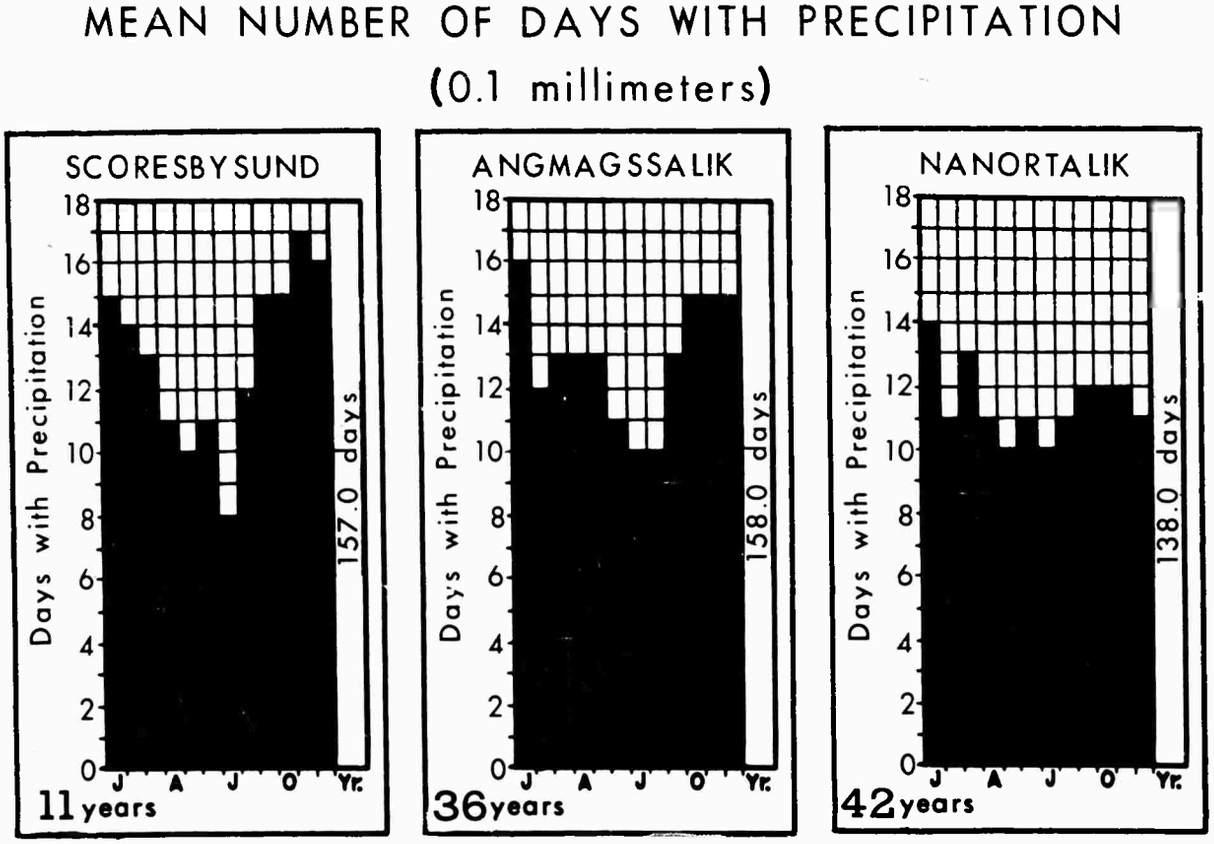


Figure 17

Excluding the anomalous (heavy) precipitation around Prins Christians Sund, mean annual amounts seem to decrease at a fairly regular rate northward: about 4 inches of precipitation for each degree of latitude (Fig. 16). At the same time, the mean annual number of days with precipitation (Fig. 17) is smaller in the south (greatest around Angmagssalik). In other words, the southernmost areas of Southeast Greenland receive more precipitation for fewer days with rain than do north coast locations.

There is considerable variation in amounts of precipitation from month to month with no clear pattern of distribution through the seasons. Highest mean monthly precipitation amounts occur in practically any month of the year. In order to detect a pattern in the annual cycle, it is necessary to group months into the four seasons and compare these 3-month groups. When this is done, the comparison among stations with 4 or more years of record shows spring or early summer to be the driest time of year. The wettest period at Prins Christians Sund comes in late winter or early spring. West of Kap Farvel and north of Torgilsbu, autumn is the wettest season, except at Skjoldungen, which receives most of its moisture during the winter.

Snow is the most frequent form of precipitation throughout the region. Mean seasonal snow accumulation on the ground is generally greatest in April and least in August (Fig. 18 and Table XIV). Although records are inconclusive, some mid-coast stations probably average about 100 inches of depth during spring. For its single year of record, Commanche Bay had 10 feet of snow on the ground during April and May; Skjoldungen, for 3 years of record, had over 8.5 feet average depth from February to May. During April, the month of greatest accumulation, the depth of snow cover increases northward from Prins Christians Sund to Atterbury Dome, falls off sharply in the Angmagssalik area, and increases slowly again northward to Scoresbysund, but does not again reach the amount at Prins Christians Sund. As a rule, there is little or no snow cover along the littoral from early July through September, except in shaded gullies.

No monthly snow depth data were found for Angmagssalik, but according to Petersen (26) there are at least 6 inches of snow on the ground there for 260 days each year (Table XV). This frequency decreases both northward and southward along the coast to 220 days at Scoresbysund and 157 days at Prins Christians Sund.

Some mean annual numbers of days with <u>snowfall</u> at selected stations listed from north to south are: 109 at Scoresbysund, 93 at Angmagssalik, and 65 at Nanortalik (Fig. 19). Snow falls during all months at Scoresbysund, all except August at Angmagssalik, and all but July at Nanortalik; however, the greatest snowfall in all parts of the region occurs in winter.

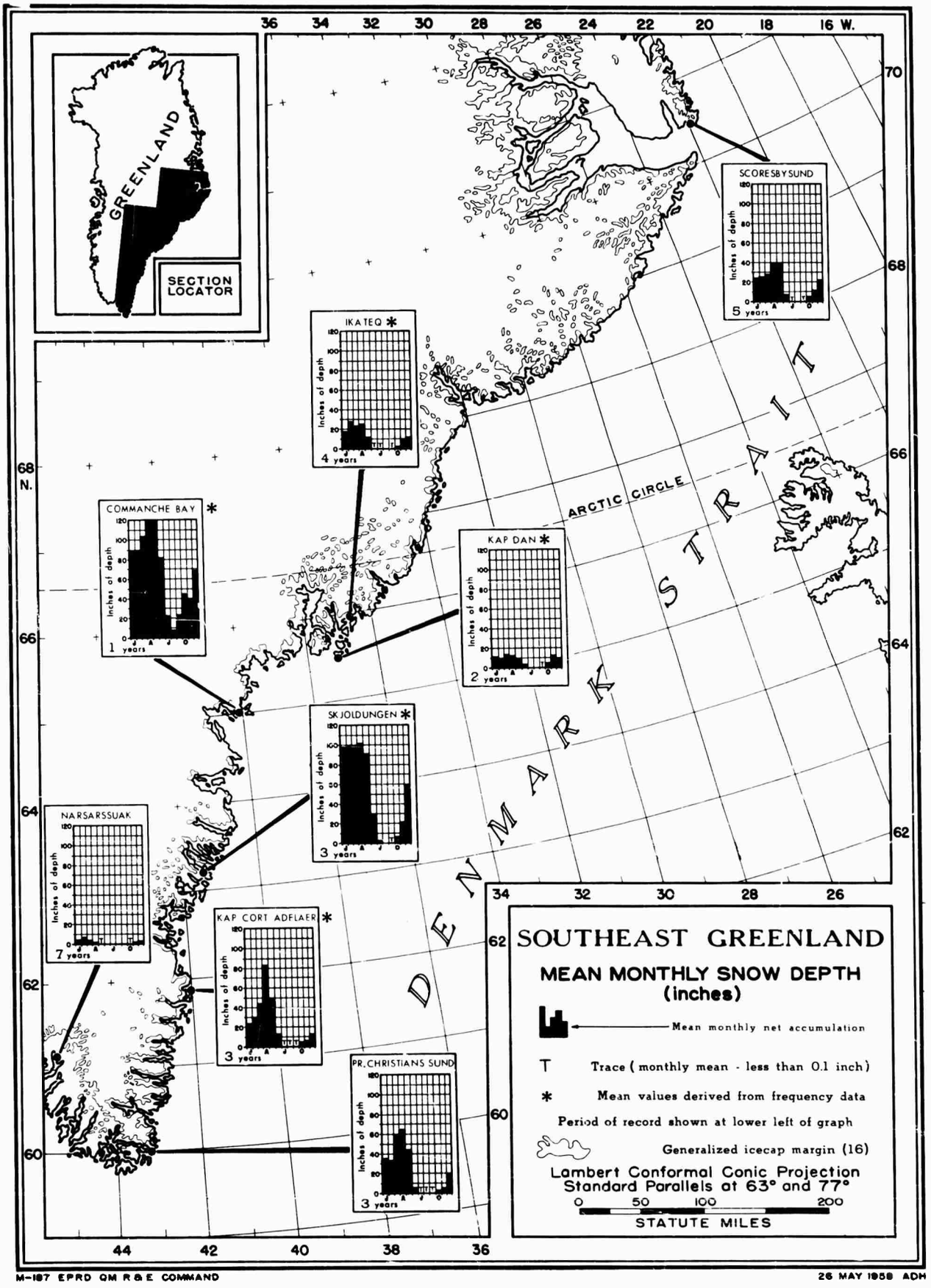

GREENLAND
SECTION LOCATOR
SCORESBYSUND
5 years
IKATEQ *
4 years
COMMANCHE BAY *
1 years
KAP DAN *
2 years
SKJOLDUNGEN *
3 years
NARSARSSUAK
7 years
KAP CORT ADELAER *
3 years
PR. CHRISTIANS SUND
3 years
Inches of depth
ARCTIC CIRCLE
DENMARK STRAIT
SOUTHEAST GREENLAND
MEAN MONTHLY SNOW DEPTH
(inches)
Mean monthly net accumulation
T Trace (monthly mean - less than 0.1 inch)
* Mean values derived from frequency data
Period of record shown at lower left of graph
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 18

Rain can occur during every month, but is most frequent during summer. In spring and autumn, rain is frequently mixed with snow. Rain falls on an average of 85 days a year at Nanortalik, 79 days at Angmagssalik, and 30 days at Scoresbysund (Fig. 20).

Other forms of precipitation are far less frequent, but measurable amounts of sleet and hail fall at all stations in the region. Angmagssalik has 15 days with sleet and 6 days with hail (mostly graupel) annually. At Scoresbysund and Nanortalik neither sleet nor hail occurs more frequently than 3 days a year, but there is a tendency for sleet storms to be more frequent in the north and hail storms to be more frequent in the south. These two forms of precipitation seldom fall anywhere along the coast during July or August (Figs. 21 and 22).

Thunderstorms are rare in Greenland. They are most frequent around Nanortalik where their occurrence averages 1 or 2 days annually. Angmagssalik averages less than 1 day with thunderstorm every 2 years and Scoresbysund records none.

D. Humidity

Ordinarily in subarctic regions, relative humidity increases during the winter although the total moisture content of the atmosphere decreases. Such a generalization does not apply very well in Southeast Greenland because of the transitional character of its climate. In fact, the climate of the southeast littoral might well be called "oceanic subarctic."

While relative humidity over the northern half of the region does increase in winter, stations south of Kap Cort Adelaer have distinct summer maxima. Thus, relative humidity in the north follows the seasonal trend of the temperature regime and varies inversely with absolute humidity, while in the extreme south it appears to be modified by summer sea breezes passing over open water offshore and therefore varies directly with absolute humidity.

Dewpoint temperatures are expressions of the actual moisture content of the atmosphere. In Southeast Greenland, mean dewpoint temperatures are highest in the summer. They average 5 to 7F degrees below the mean dry bulb temperature, with greatest differences (not over 8F degrees) occurring during the summer (Table XIII). Annual mean values of relative humidity decrease from north to south as the differences between dewpont and dry bulb temperatures increase. The latitudinal rate of change seems to be about 0.5 percent relative humidity for each degree of latitude between Scoresbysund and Angmagssalik, but south of Angmagssalik the rate of change triples to 1.5 percent per degree of latitude, according to the limited data available.

MEAN NUMBER OF DAYS WITH SNOW

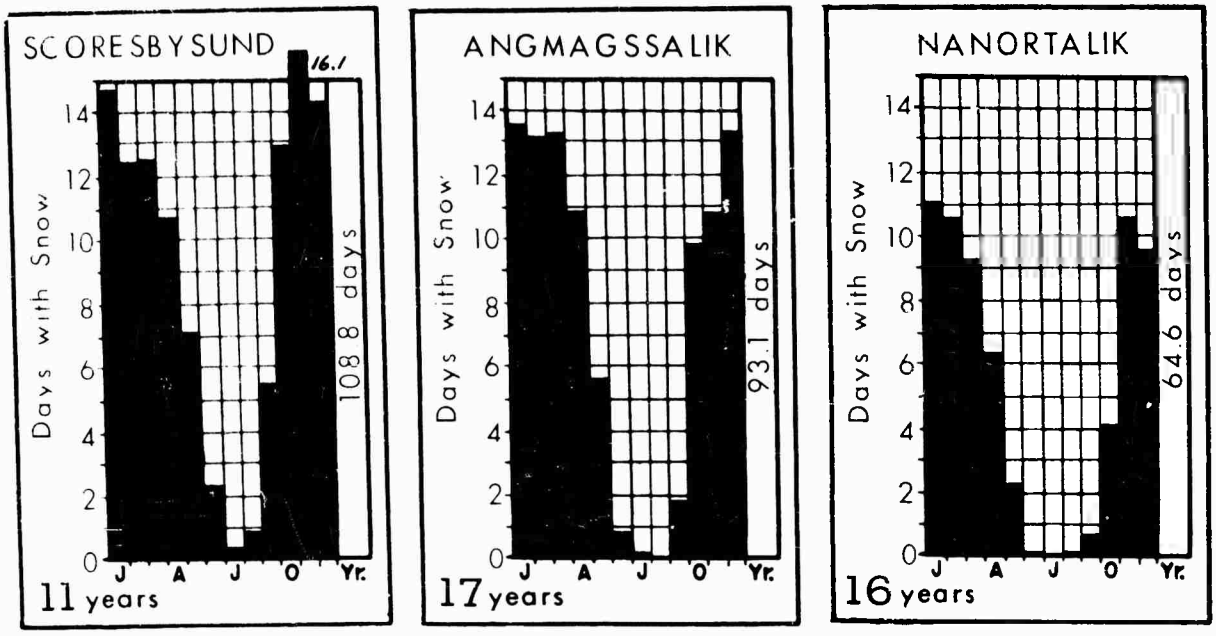


FIGURE 19

MEAN NUMBER OF DAYS WITH RAIN

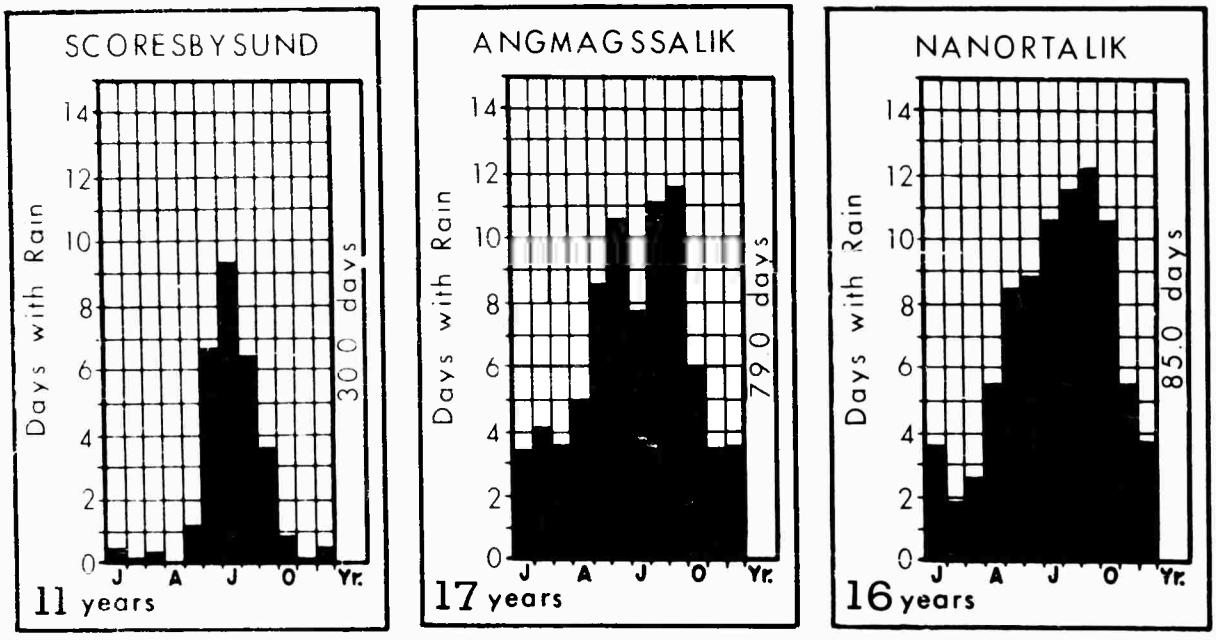


FIGURE 20

MEAN NUMBER OF DAYS WITH HAIL

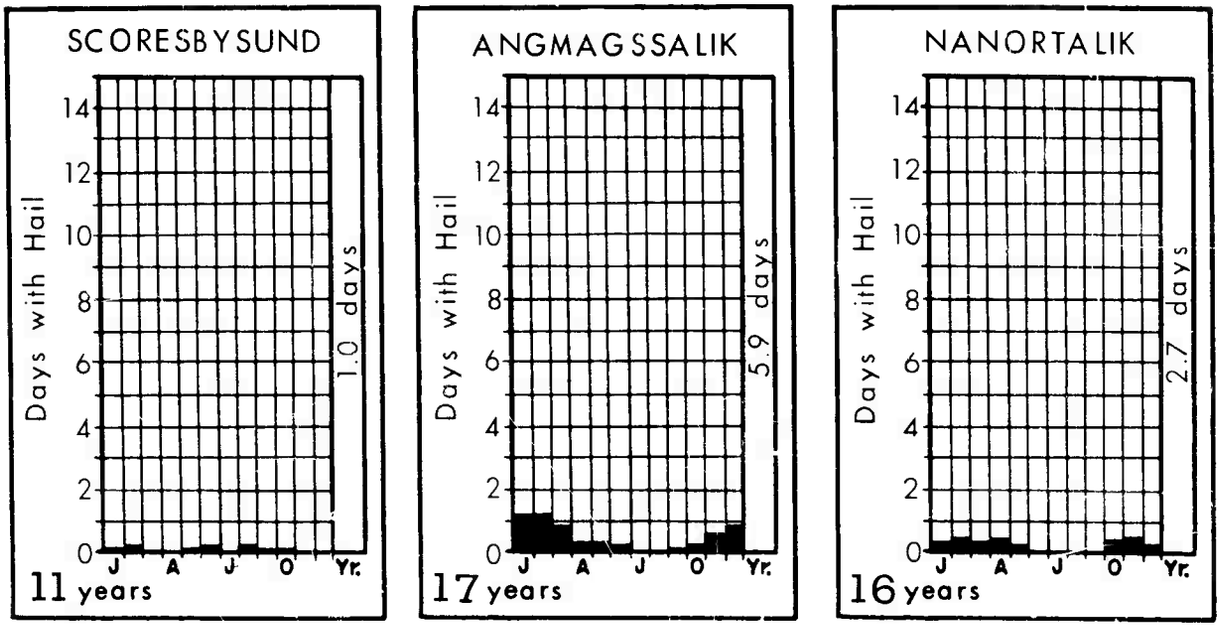


FIGURE 21

MEAN NUMBER OF DAYS WITH SLEET

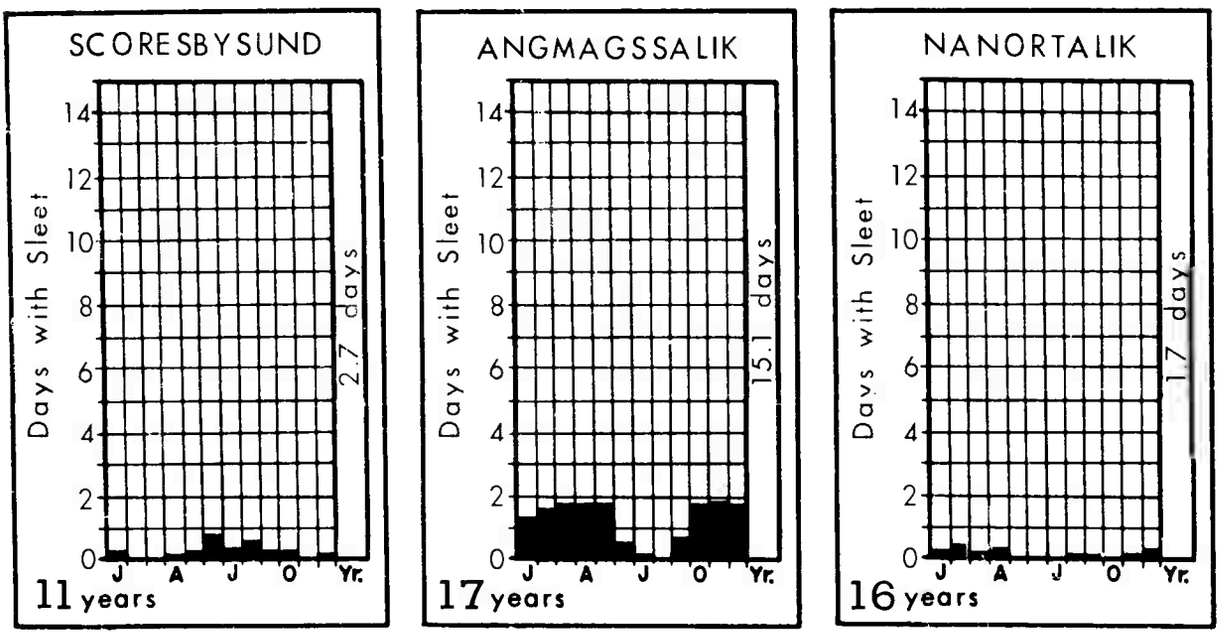


FIGURE 22

Sudden, large changes in temperature are responsible for most non-periodic fluctuations in relative humidity in Southeast Greenland. These can be caused by foehn winds, sea-breeze wind shifts, storm passages, or simply by freshening winds which break down the local surface temperature inversion. The most frequent cause is probably the passage of frontal storms with resulting rapid changes in airmass temperature. Since relative humidity falls as temperatures rise, it is usually lowest during daylight hours.

e. Clouds and fog

Cloud formations over Southeast Greenland are commonly of the low stratus type. Cumulus clouds are relatively rare. Characteristically, the upper limit of overcast averages about 5,000 feet m.s.l. in the winter and about 10,000 feet m.s.l. during the summer. Lower limits are generally below 1,000 feet during any season. Among selected, long-record stations, the mean annual sky cover is about 65 percent (Fig. 23 and Table IX). There is a tendency for locations away from the coast in deeper bays and fiords to be less cloudy. About 5 or 6 totally clear days per month is a fair average to expect anywhere along the coast; evening hours (during months when there are evenings) tend to be clearest.

Although there is considerable monthly fluctuation in percent of cloud cover among stations, there is nevertheless a discernible regional pattern. When all stations are averaged together, the result shows maximum cloudiness in Ma., another less pronounced rise in October, and least cloudiness in July and December. The greatest frequency of periods with totally clear skies, however, occurs in April. Examination of annual averages reveals no clear latitudinal pattern of cloudiness. The general increase in cloud volume in springtime (May) is probably related to the cooling of moist airmasses being advected northward over melting sea ice. Sea fogs produced by this advection are frequently lifted by strong surface winds and become sheets of stratus clouds.

A comparison between five northern stations including Angmagssalik, and five southern stations, shows greater cloudiness in the southern portion during the period from February to August and greater cloudiness in the northern portion from October to February. There is no apparent difference in September. This seems to correlate well with the northward progress of sea-ice deterioration during the summer.

While totally clear skies are relatively uncommon over Southeast Greenland, the stratus sheets are not usually very dense. Consequently, solar radiation is not reduced as much as it is in lower latitudes under their characteristically thicker, denser cloud cover.

Fog along the southeast littoral is mostly advective sea fog. Invasions of relatively warm, moist air moving over cold sea water and melting

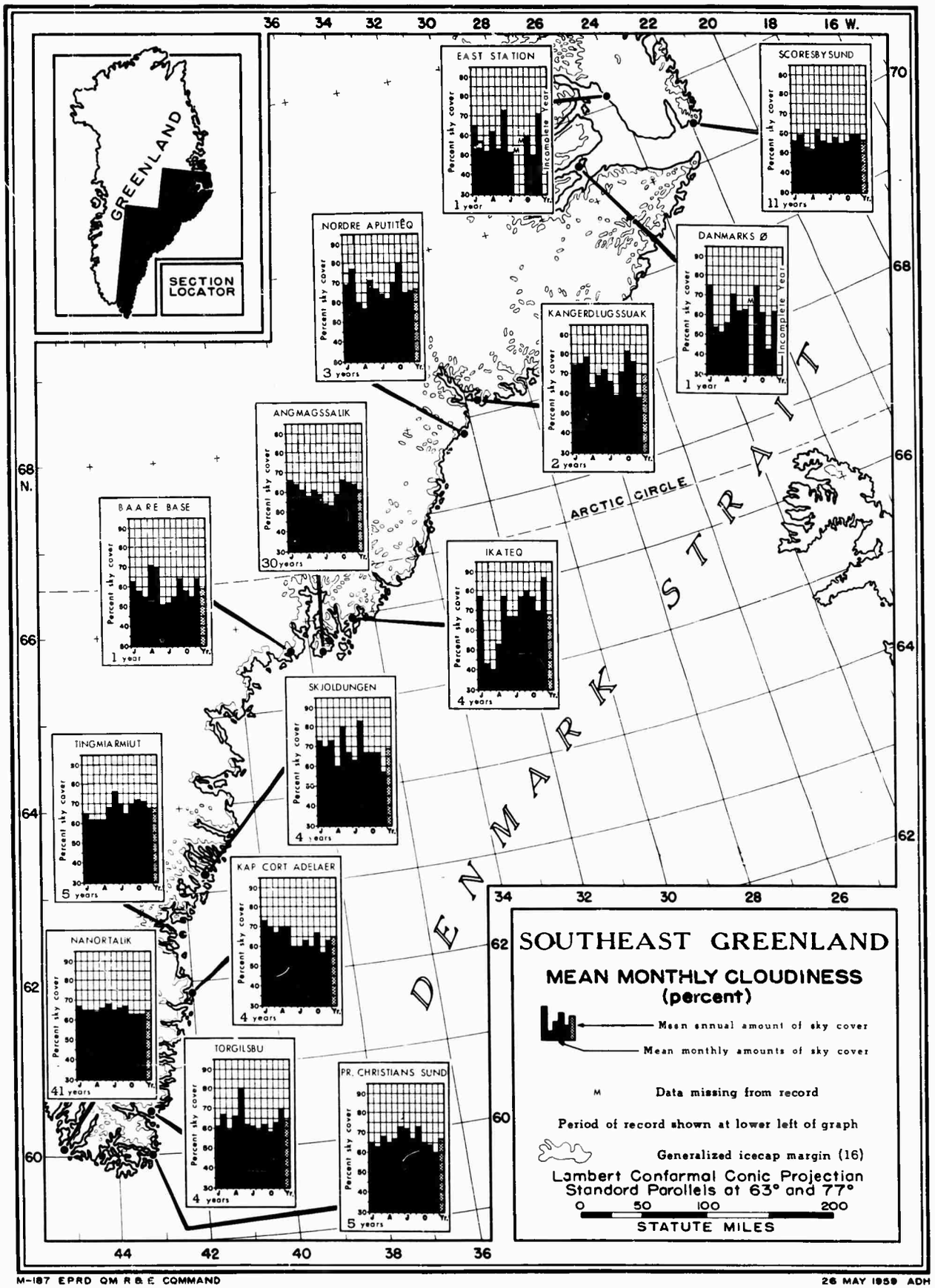

GREENLAND
SECTION LOCATOR
EAST STATION
1 year
SCORESBY SUND
11 years
NORDRE APUTITÊQ
3 years
DANMARKS Ø
1 year
KANGERDLUGSSUAK
2 years
ANGMAGSSALIK
30 years
BAARE BASE
1 year
IKATEQ
4 years
SKJOLDUNGEN
4 years
TINGMIARMIUT
5 years
KAP CORT ADELAER
4 years
NANORTALIK
41 years
TORGILSBU
4 years
PR. CHRISTIANS SUND
5 years
ARCTIC CIRCLE
DENMARK STRAIT
Percent sky cover
Incomplete Year
SOUTHEAST GREENLAND
MEAN MONTHLY CLOUDINESS
(percent)
Mean annual amount of sky cover
Mean monthly amounts of sky cover
M Data missing from record
Period of record shown at lower left of graph
Generalized icecap margin (16)
Lambert Conformal Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1959 ADH

FIGURE 23

ICE BECOME CHILLED AND CONDENSATION OCCURS. SEA FOGS CAN FORM AT ALMOST ANY TIME OF YEAR (WHEN THERE ARE OPEN LEADS IN THE ICE PACK), BUT THEIR FREQUENCY INCREASES IN THE SUMMER (FIG. 24 AND TABLE XIII) WHILE THE ICE PACK IS BREAKING UP AND SPRING WINDS HAVE SUBSIDED TO WHERE THEY NO LONGER SWEEP THE CONDENSATION UP INTO STRATUS SHEETS. VERY STRONG WINDS THROUGHOUT THE SINGLE YEAR OF OBSERVATION AT ATTERBURY DOME APPARENTLY LIFTED A GREAT DEAL OF MARITIME FOG UP TO THE ELEVATION OF THE STATION (1,186 FEET M.S.L.). THIS ANALYSIS WOULD ACCOUNT FOR THE ANOMALOUSLY HIGH FREQUENCY OF FOG OBSERVED THERE (195 DAYS), WHILE 5 MILES AWAY AND DOWN ON THE SHORE, COMMANCHE BAY REPORTED CONSIDERABLE LOW CLOUDINESS, BUT ONLY TRANSITORY FOGS.

THE GREATEST FREQUENCY OF FOGS AMONG STATIONS OF RELIABLE RECORD OCCURS AT SCORESBYSUND (86 DAYS PER YEAR); TINGMIARMIUT RECORDS THE LOWEST FREQUENCY (6 DAYS PER YEAR). THE RELATIONSHIP OF 60 DAYS (PER YEAR) WITH FOG AT NANORTALIK AND 20 DAYS AT NARSARSSUAK, 70 MILES AWAY AT FIORD HEAD, SUGGESTS THAT FOG OCCURRENCE IN LONG FIORDS MAY DECREASE AS THE DISTANCE FROM THE OPEN SEA INCREASES.

F. RADIATION AND ILLUMINATION

SOLAR AND TERRESTRIAL RADIATION VALUES AVAILABLE FOR SOUTHERN GREENLAND ARE OBTAINED THROUGH EXTRAPOLATION FROM AVERAGES FOR HEMISPHERE-WIDE BELTS OF LATITUDE. SUCH INFORMATION GIVES LITTLE CONSIDERATION TO TERRAIN CONFIGURATION, CLOUD COVER, OR LOCAL VARIATIONS IN ATMOSPHERIC REFRACTION. THERE HAVE BEEN SOME MEASUREMENTS MADE THERE, BUT THEIR USE IS LIMITED BECAUSE THEY ARE EITHER HIGHLY GENERALIZED OR TOO FRAGMENTARY TO BE RELIABLE.

DAYLIGHT AND DARKNESS RELATIONSHIPS ARE WELL KNOWN TO THE INHABITANTS OF SOUTHEAST GREENLAND, BUT LITTLE DETAILED STUDY HAS REACHED THE SCIENTIFIC LITERATURE. FIGURE 25 SHOWS, IN A VERY GENERAL WAY, THE ANNUAL DISTRIBUTION OF DAYLIGHT AND DARKNESS PERIODS BY MONTHS, AS EXPERIENCED AT LOCATIONS WITH UNOBSTRUCTED SEA-LEVEL HORIZONS IN LATITUDES BETWEEN 60° AND 70° N. IN THIS ILLUSTRATION, THE GRAPHIC INFORMATION HAS BEEN RECTIFIED WITH THE PARALLELS OF LATITUDE ON A MAP OF GREENLAND SO THAT IT IS POSSIBLE (SUBJECT TO THE STATED QUALIFICATIONS) TO ESTIMATE THE AVERAGE PERIOD OF DAYLIGHT ANY MONTH AT PARTICULAR LOCATIONS ALONG THE COAST. DAYLIGHT AS PORTRAYED ON THE GRAPH IS CIVIL DAYLIGHT, WHICH BEGINS WHEN THE SUN IS 6 DEGREES BELOW THE HORIZON BEFORE RISING AND ENDS WHEN THE SUN HAS SET AGAIN TO 6 DEGREES BELOW THE HORIZON. CIVIL TWILIGHT IS CLASSIFIED AS DARKNESS. LONG PERIODS OF BRIGHT ARCTIC TWILIGHT HOWEVER, PERMIT MOST OUTDOOR ACTIVITIES TO BE CARRIED ON WITHOUT ARTIFICIAL LIGHTING.

THE ACTUAL DURATION OF SUNLIGHT DEPENDS ON THE EXTENT AND DURATION OF CLOUD COVER, FOG, ATMOSPHERIC REFRACTION AND THE ELEVATION OF THE HORIZON. THE COLLECTIVE EFFECT OF ALL THESE RESTRICTIONS ON INCOMING RADIATION OVER

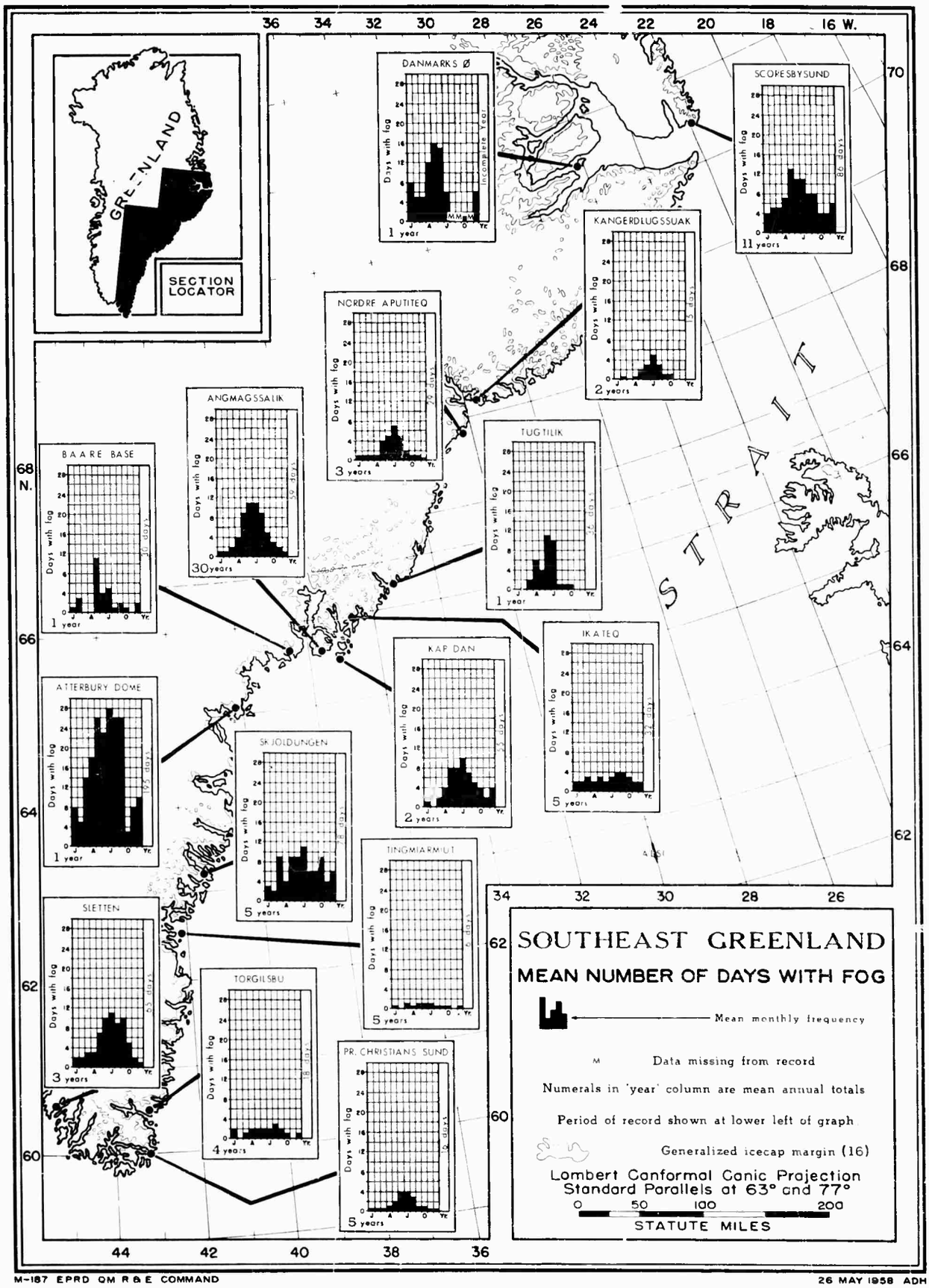

GREENLAND
SECTION LOCATOR
DANMARKS Ø
1 year
SCORESBYSUND
11 years
KANGERDLUGSSUAK
2 years
NORDRE APUTITEQ
3 years
ANGMAGSSALIK
30 years
TUGTILIK
1 year
BAARE BASE
1 year
IKATEQ
5 years
KAP DAN
2 years
ATTERBURY DOME
1 year
SKJOLDUNGEN
5 years
TINGMIARMIUT
5 years
SLETTEN
3 years
TORGILSBU
4 years
PR. CHRISTIANS SUND
5 years
STRAIT
SOUTHEAST GREENLAND
MEAN NUMBER OF DAYS WITH FOG
Mean monthly frequency
M Data missing from record
Numerals in 'year' column are mean annual totals
Period of record shown at lower left of graph
Generalized icecap margin (16)
Lombert Conformal Canic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD QM R&E COMMAND
26 MAY 1958 ADH

FIGURE 24

DAYLIGHT AND DARKNESS RELATIONSHIPS

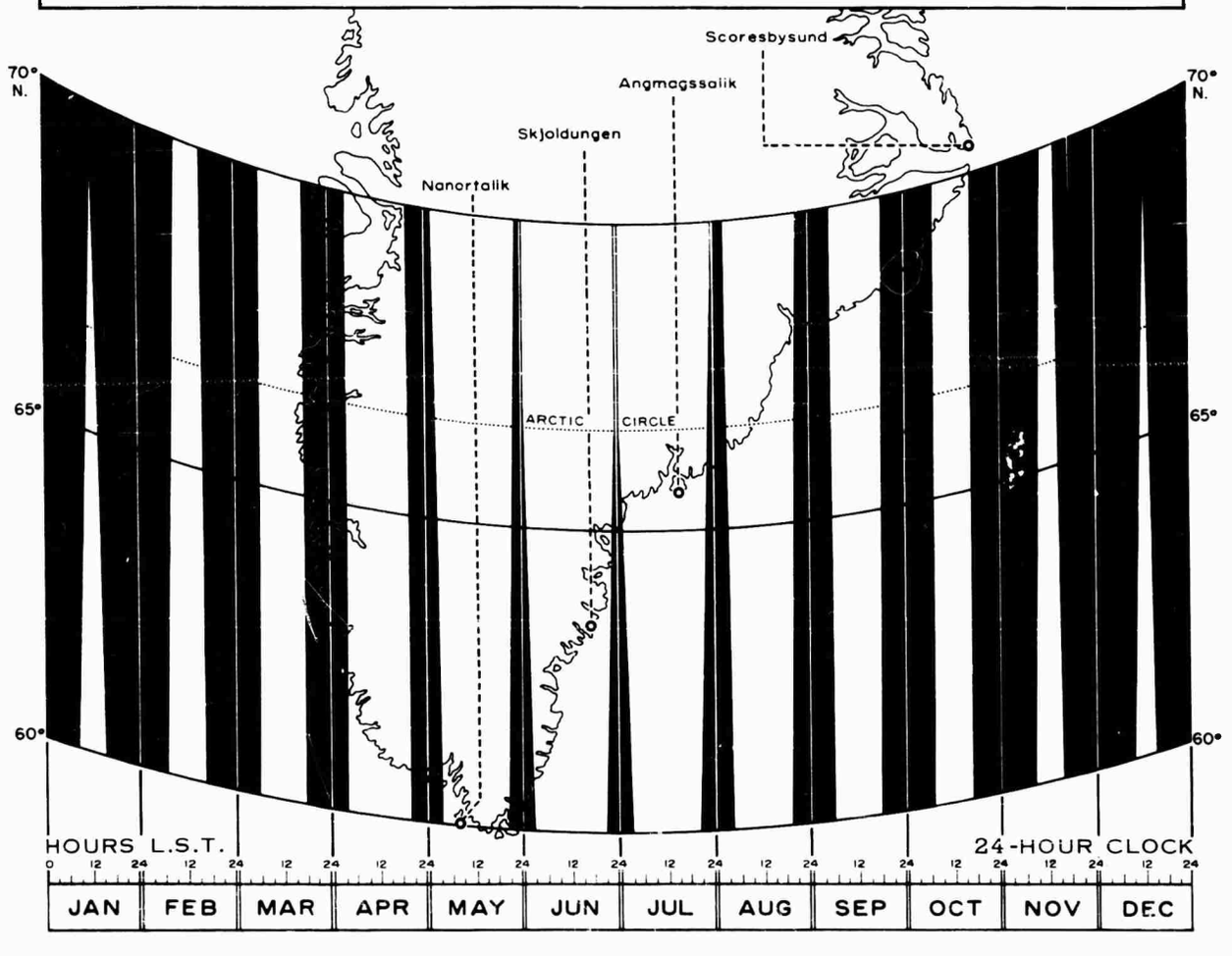
DARKNESS INCLUDES TWILIGHT

MEAN DAILY DURATION OF DAYLIGHT IN LATITUDES OF SOUTHERN GREENLAND

UNSHADED PORTION OF MONTHLY GRAPH SHOWS HOURS BETWEEN SUNRISE & SUNSET AT MID-MONTH ASSUMING A SEA LEVEL HORIZON

EXAMPLE: SKJOLDUNGEN WOULD HAVE APPROXIMATELY 6.5 HOURS OF DAYLIGHT IN MID-NOVEMBER IF THERE WERE NO TOPOGRAPHIC OBSTRUCTIONS SUCH AS THE MOUNTAINS WEST OF THE STATION

(I.E., HORIZONTAL WIDTH OF UNSHADED PORTION FOR NOVEMBER AT THE LATITUDE OF SKJOLDUNGEN REPRESENTS DAYLIGHT FROM 0830 TO 1500 HOURS READ ON 24-HOUR CLOCK SCALE BENEATH)



EPRD QM R&E COMMAND

FIGURE 25

DECEMBER 1959 ADH

DAYLIGHT AND DARKNESS RELATIONSHIPS

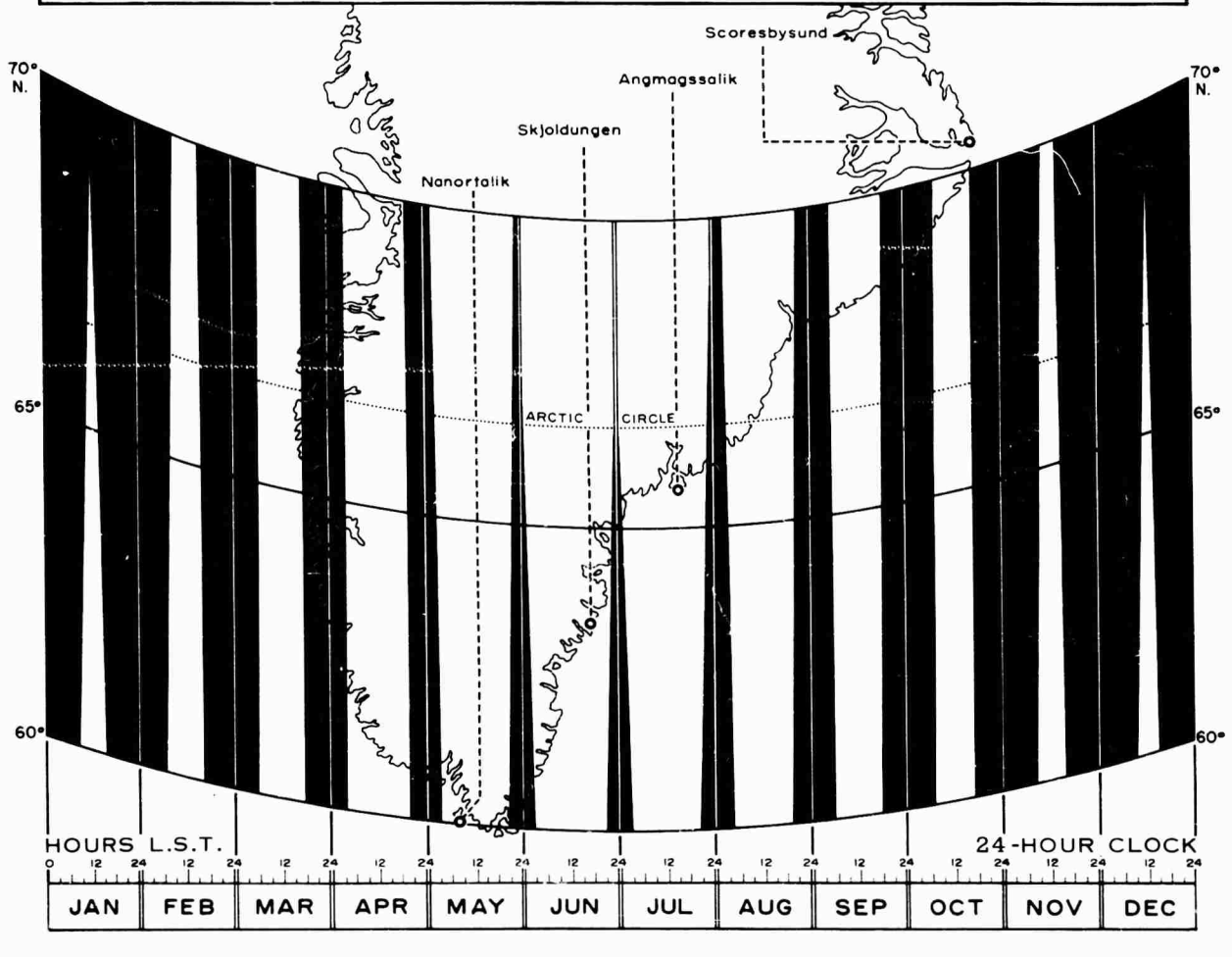
DARKNESS INCLUDES TWILIGHT

MEAN DAILY DURATION OF DAYLIGHT IN LATITUDES OF SOUTHERN GREENLAND

UNSHADED PORTION OF MONTHLY GRAPH SHOWS HOURS BETWEEN SUNRISE & SUNSET AT MID-MONTH ASSUMING A SEA LEVEL HORIZON

EXAMPLE: SKJOLDUNGEN WOULD HAVE APPROXIMATELY 6.5 HOURS OF DAYLIGHT IN MID-NOVEMBER IF THERE WERE NO TOPOGRAPHIC OBSTRUCTIONS SUCH AS THE MOUNTAINS WEST OF THE STATION

(I.E., HORIZONTAL WIDTH OF UNSHADED PORTION FOR NOVEMBER AT THE LATITUDE OF SKJOLDUNGEN REPRESENTS DAYLIGHT FROM 0830 TO 1500 HOURS READ ON 24-HOUR CLOCK SCALE BENEATH)



EPRD QM R & E COMMAND

FIGURE 25

DECEMBER 1959 ADH

SOUTHEAST GREENLAND IS THAT THE LITTORAL RECEIVES DIRECT SUNLIGHT DURING A PERIOD EQUAL TO ONLY 25 TO 30 PERCENT OF THE ANNUAL AVERAGE OF POSSIBLE DAYLIGHT AFFORDED BY A HYPOTHETICAL SEA-LEVEL HORIZON.

THE U.S. WEATHER BUREAU HAS PUBLISHED A MAP ENTITLED "TOTAL HOURS OF SUNSHINE" WHICH SHOWS 1600 TO 1800 ANNUAL HOURS OF SUNSHINE ALONG THE COAST OF SOUTHEAST GREENLAND. THE VALUES FOR MUCH OF THE MAP ARE BASED UPON RECORDS OF SUNLIGHT AND CLOUD-COVER OBSERVATIONS. SINCE SUNLIGHT OBSERVATIONS ARE NOTABLY SCARCE FOR GREENLAND, THE VALUES SHOWN THERE ARE DERIVED LARGELY FROM THE FORMULA:

$$\text{SUNSHINE HOURS} = T\,(10 - C)$$

WHERE T REPRESENTS THE MAXIMUM POSSIBLE NUMBER OF SUNSHINE HOURS (CIVIL DAYLIGHT) AND C IS THE MEAN ANNUAL PERCENT OF CLOUDINESS. IN OTHER AREAS, HOURS DERIVED FROM THIS COMPUTATION ARE USUALLY FEWER THAN THE ACTUAL AVERAGE BUT, IN THE CASE OF SOUTHEAST GREENLAND, 1600 TO 1800 HOURS WOULD PROBABLY APPLY ONLY TO ICECAP SITES NEAR THE EXTREME WESTERN LIMIT OF THE REGION. FOR ALMOST ANY STATION ON THE LITTORAL, ANOTHER 10 OR 12 PERCENT OF POSSIBLE SUNSHINE SHOULD BE DEDUCTED FOR THE MASKING EFFECT OF THE MOUNTAIN BARRIER. THIS CALCULATION NETS BETWEEN 1400 AND 1600 SUNSHINE HOURS PER YEAR ALONG THE COAST. WITHIN THIS RANGE, AMOUNTS TEND TO DECREASE FROM NORTH TO SOUTH.

6. CULTURAL FEATURES

SOUTHEAST GREENLAND IS DIVIDED INTO FIVE ADMINISTRATIVE DISTRICTS: SCORESBYSUND, KANGERDLUGSSUAK, ANGMAGSSALIK, SKJOLDUNGEN, AND NANORTALIK. THE NORTHERNMOST, SCORESBYSUND DISTRICT, INCLUDES THE LANDS SURROUNDING THE SCORESBY SUND SYSTEM OF FIORDS, LIVERPOOL LAND,* AND THE BLOSSEVILLE KYST AS FAR SOUTH AS BARCLAY BUGT. KANGERDLUGSSUAK DISTRICT LIES BETWEEN BARCLAY BUGT AND KAP GUSTAV HOLM. ANGMAGSSALIK DISTRICT INCLUDES THE MAINLAND COAST AND OFFSHORE ISLANDS BETWEEN KAP GUSTAV HOLM AND THE BAY OF IKERSSUAQ. SKJOLDUNGEN DISTRICT (ALSO KNOWN AS SYDØSTKYST) EXTENDS FROM IKERSSUAQ TO LINDENOWS FJORD. THE SMALLEST DISTRICT, NANORTALIK, TAKES IN THE SOUTHERNMOST CAPE LANDS BETWEEN LINDENOWS FJORD AND TASERMIUT FJORD.

AT THE TIME OF THE LATEST AVAILABLE DEMOGRAPHIC SURVEY OF THE REGION (IN 1950), THERE WERE APPROXIMATELY 2,900 INHABITANTS IN SOUTHEAST GREENLAND. THIS REPRESENTED ABOUT 12 PERCENT OF THE TOTAL POPULATION OF GREENLAND. OVER HALF OF THESE PEOPLE RESIDED IN ANGMAGSSALIK DISTRICT AND 35 PERCENT WERE IN NANORTALIK DISTRICT (FIG. 26). POPULATION GROWTH HAS BEEN IMPRESSIVE FOR SUCH AN ISOLATED AREA. FOR EXAMPLE, THE POPULATION OF ANGMAGSSALIK ROSE FROM 352 INHABITANTS AT THE TURN OF THE CENTURY TO 1,480 JUST 50 YEARS LATER.

*CONSIDERED PART OF NORTHEAST GREENLAND IN THIS STUDY.

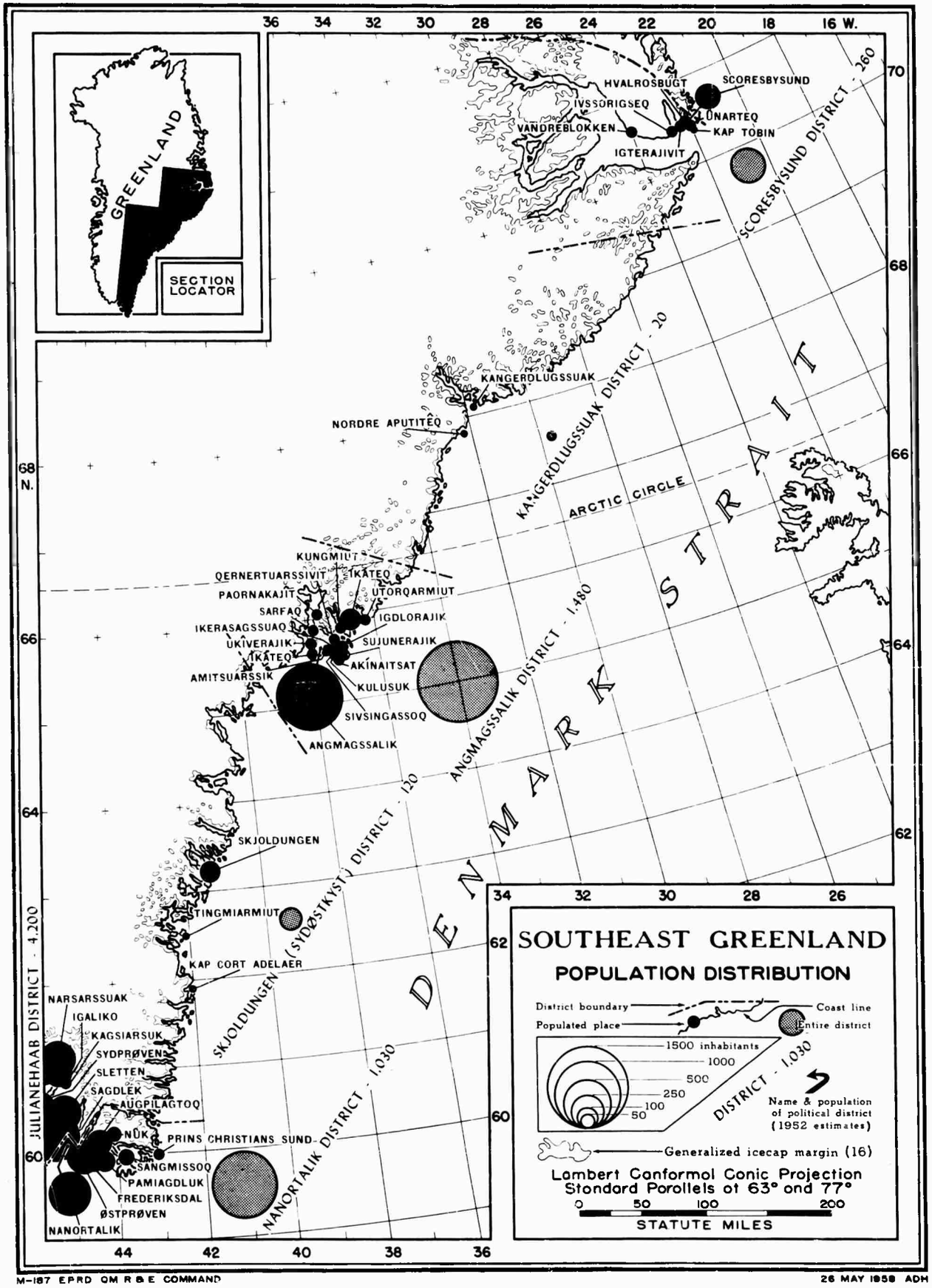

GREENLAND
SECTION LOCATOR
SCORESBYSUND
HVALROSBUGT
IVSSORIGSEQ
VANDREBLOKKEN
IGTERAJIVIT
UNARTEQ
KAP TOBIN
SCORESBYSUND DISTRICT - 260
KANGERDLUGSSUAK
NORDRE APUTITEQ
KANGERDLUGSSUAK DISTRICT - 20
ARCTIC CIRCLE
DENMARK STRAIT
KUNGMIUT
QERNERTUARSSIVIT
IKATEQ
PAORNAKAJIT
UTORQARMIUT
SARFAQ
IGDLORAJIK
IKERASAGSSUAQ
UKIVERAJIK
SUJUNERAJIK
IKATEQ
AKINAITSAT
AMITSUARSSIK
KULUSUK
SIVSINGASSOQ
ANGMAGSSALIK
ANGMAGSSALIK DISTRICT - 1,480
SKJOLDUNGEN
TINGMIARMIUT
(SYDØSTKYSTEN) DISTRICT - 120
KAP CORT ADELAER
SKJOLDUNGEN
NARSARSSUAK
IGALIKO
KAGSIARSUK
SYDPRØVEN
SLETTEN
SAGDLEK
AUGPILAGTOQ
NÛK
PRINS CHRISTIANS SUND
SANGMISSOQ
PAMIAGDLUK
FREDERIKSDAL
ØSTPRØVEN
NANORTALIK
NANORTALIK DISTRICT - 1,030
JULIANEHAAB DISTRICT - 4,200
68 N.
70
68
66
64
62
60
36 34 32 30 28 26 24 22 20 18 16 W.
44 42 40 38 36
34 32 30 28 26
SOUTHEAST GREENLAND
POPULATION DISTRICT
District boundary
Coast line
Populated place
Entire district
1500 inhabitants
1000
500
250
100
50
DISTRICT - 1,030
Name & population of political district (1952 estimates)
Generalized icecap margin (16)
Lambert Conformol Conic Projection
Standard Parallels at 63° and 77°
0 50 100 200
STATUTE MILES
M-187 EPRD OM R&E COMMAND
26 MAY 1958 ADH

FIGURE 26

THE MOST DENSELY SETTLED PART OF NANORTALIK DISTRICT IS AN EXTENSION OF GREENLAND'S LARGEST POPULATION COMPLEX WHICH IS CENTERED IN THE JULIANEHAAB DISTRICT OF SOUTHWEST GREENLAND. IN 1950 THE REMAINING POPULATION OF THE REGION WAS DISTRIBUTED AS FOLLOWS: 9 PERCENT IN SCORESBYSUND DISTRICT, 4 PERCENT IN SKJOLDUNGEN DISTRICT, AND LESS THAN 1 PERCENT IN KANGERDLUGSSUAK DISTRICT. THE 20 PERSONS ESTIMATED TO BE LIVING IN KANGERDLUGSSUAK DISTRICT WERE STAFF MEMBERS OF TWO METEOROLOGICAL STATIONS AT KANGERDLUGSSUAK AND NORDRE APUTITÊQ. MOST OF THE INHABITANTS ARE EAST GREENLANDERS (ESKIMOS). THERE ARE A FEW DOZEN DANES, MOSTLY GOVERNMENT EMPLOYEES, FISHERY SUPERVISORS, AND COMMUNICATIONS TECHNOLOGISTS.

GREENLAND, WHICH WAS A COLONY UNTIL 1953, IS NOW AN INTEGRAL PART OF DENMARK. IT IS GOVERNED BY A 14-MEMBER NATIONAL COUNCIL PRESIDED OVER BY A NATIONAL COMMISSIONER. THE COMMISSIONER IS ALSO A MEMBER OF A 3-MAN BOARD OF EDUCATION, SINCE THE ADMINISTRATION OF SCHOOLS WAS SEPARATED FROM THE GREENLAND CHURCH IN 1950. THE NATIONAL COUNCIL ADMINISTERS THROUGH LOCAL SETTLEMENT COUNCILS, EACH COMPOSED OF ABOUT ONE DOZEN ESKIMOS AND DANES. THE SETTLEMENT COUNCILS ACTUALLY AMOUNT TO DISTRICT COUNCILS IN SOUTHEAST GREENLAND WHERE THERE IS NO MORE THAN ONE MAJOR SETTLEMENT IN EACH DISTRICT. IN ADDITION TO NORMAL ADMINISTRATIVE DUTIES, THE SETTLEMENT COUNCIL MEMBERS ACT AS JURYMEN IN JUDGING AND SENTENCING PUBLIC OFFENDERS APPREHENDED BY LOCAL POLICE COMMISSIONERS. IN THIS FUNCTION, THEY ARE CONTROLLED BY THE NATIONAL COURT LOCATED IN THE CAPITOL AT GODTHAAB IN SOUTHWEST GREENLAND.

IN DENMARK A SPECIAL GREENLAND COMMITTEE COMPOSED OF EIGHT MEMBERS APPOINTED BY THE DANISH PARLIAMENT AND TWO NOMINATED BY THE GREENLAND NATIONAL COUNCIL FUNCTIONS AS LIAISON BETWEEN GREENLAND AND THE PARLIAMENT IN COPENHAGEN, ALTHOUGH GREENLAND HAS NO DIRECT REPRESENTATION.

RADIO COMMUNICATION AMONG ALL SETTLEMENTS IN SOUTHEAST GREENLAND IS WELL-DEVELOPED AND EFFICIENT. REGULARLY-SCHEDULED BROADCASTS OF NEWS, WEATHER, AND ENTERTAINMENT ARE DELIVERED IN BOTH DANISH AND IN ESKIMO DIALECTS, AND BULLETINS POSTED AT FREQUENT INTERVALS IN VILLAGE MEETING PLACES ARE AVIDLY READ. MANY EAST GREENLAND FAMILIES NOW OWN RADIO RECEIVERS. THE FACT IS THAT EAST GREENLANDERS KNOW MORE ABOUT THE OUTSIDE WORLD THAN THEY DO ABOUT GREENLAND. ALL BUT THE OLDEST ESKIMOS ARE LITERATE, A SITUATION WHICH MAKES PROFITABLE THE PUBLICATION OF A SMALL MONTHLY NEWSPAPER AT ANGMAGSSALIK.

ACCURATE WEATHER INFORMATION FROM SOUTHEAST GREENLAND IS OF GREAT IMPORTANCE TO EUROPEANS. METEOROLOGICAL OBSERVATIONS ARE MADE DAILY AT REGULARLY-SCHEDULED INTERVALS AT RADIO-METEOROLOGICAL STATIONS LOCATED AT NANORTALIK, PRINS CHRISTIANS SUND, KAP CORT ADELAER, TINGMIARMIUT, SKJOLDUNGEN, ANGMAGSSALIK, IKATEQ, KANGERDLUGSSUAK, NORDRE APUTITÊQ, AND SCORESBYSUND. WEATHER REPORTS FROM THESE STATIONS ARE WIRED TO COPENHAGEN FOR IMMEDIATE INCLUSION IN SYNOPTIC FORECASTS FOR THE CONTINENT.

THE ABANDONED AIRSTRIP AT IKATEQ, BLUIE EAST-2, WHICH WAS CONSTRUCTED FOR THE U.S. AIR FORCE DURING WORLD WAR II, COULD BE MADE SUITABLE FOR LARGE, COMMERCIAL, PROPELLER-DRIVEN AIRCRAFT, ALTHOUGH VISIBILITY AND WIND CONDITIONS ARE FAR FROM IDEAL FOR REGULAR SERVICE. GOOD POSSIBILITIES FOR CONSTRUCTION OF A LARGE AIRFIELD EXIST IN THE VICINITY OF SCORESBYSUND WHERE WEATHER CONDITIONS ARE MORE FAVORABLE. MANY FIORDS ALONG THE COAST AFFORD EXCELLENT AIRCRAFT LANDING AREAS WHEN FROZEN OVER, AND MOST COASTAL AREAS ARE ACCESSIBLE TO FLOAT PLANES IN LATE SUMMER. THERE IS NO ROAD SYSTEM IN SOUTHEAST GREENLAND. GRADED ROADS ARE CONFINED TO DOCK AND SETTLEMENT AREAS ONLY.

IN THE HALF CENTURY OF DANISH SUPERVISION, THE SELF-SUFFICIENT STONE AGE CULTURE OF THE EAST GREENLAND ESKIMO HAS BECOME SO DEPENDENT UPON GOVERNMENT AID AND FREE CARE THAT IT IS DOUBTFUL IF IT COULD AGAIN SURVIVE WITHOUT IMPORTS AND SUBSIDY. EXCEPT FOR FOOTWEAR, THE NATIVE SKIN COSTUMES HAVE BEEN REPLACED LARGELY BY GARMENTS OF MACHINE-WOVEN FABRICS. INSTEAD OF STONE AND SOD HUTS, THE ESKIMO NOW LIVES IN WOOD FRAME HOUSES, SOME WITH ELECTRIC LIGHTING. KAYAKS ARE STILL USED, BUT SINCE SEALS HAVE ALL BUT DISAPPEARED FROM THE COAST, THESE BOATS ARE MAINLY USED FOR SHORT-DISTANCE TRANSPORTATION. THE LARGE UMIAKS (OPEN SKIN BOATS), FORMERLY USED TO TRANSPORT FAMILY AND BELONGINGS, HAVE BEEN REPLACED BY OUTBOARD-POWERED LAUNCHES. FOOD SUPPLIES, ESPECIALLY IN THE LARGER SETTLEMENTS, ARE MOSTLY PURCHASED OR TRADED FOR IN VILLAGE STORES.

THROUGH MODERN MEDICINE AND HOSPITAL FACILITIES, NATIVE DISEASES ARE BEING BROUGHT UNDER CONTROL. MEDICAL AND HOSPITAL CARE ARE FREE TO EVERYONE. THERE IS A SMALL BUT WELL-EQUIPPED HOSPITAL AT ANGMAGSSALIK AND THE HOSPITAL SHIP, "MISIGSSUT," VISITS ALONG THE COAST WHENEVER AND WHEREVER POSSIBLE. IT IS EQUIPPED WITH ALL KNOWN MEANS FOR DETECTING TUBERCULOSIS. TUBERCULOSIS, INFLUENZA, AND VENEREAL DISEASES ARE THE GREATEST AFFLICTIONS OF PRESENT-DAY EAST GREENLANDERS. IN AN EFFORT TO WIPE OUT THESE DISEASES, THE MEDICAL AUTHORITIES HAVE PROVIDED FOR PERIODIC EXAMINATION OF ALL GREENLANDERS.

SCHOOLS ARE SMALL AND UNDERSTAFFED, BUT EDUCATION IS COMPULSORY BETWEEN THE AGES OF 7 AND 14 AND EVENING CLASSES ARE AVAILABLE FOR THE OLDER PEOPLE. EDUCATED ESKIMOS ARE NOW EMPLOYED AS STORE MANAGERS, CLERKS, TYPISTS, METEOROLOGICAL OBSERVERS, WIRELESS OPERATORS, MOTOR VESSEL PILOTS AND ENGINEERS, NURSES AIDES, MACHINE OPERATORS, AND LOCAL OFFICIALS. A FEW GREENLANDERS HAVE DISTINGUISHED THEMSELVES AS WRITERS AND SOME ARE NOW BEGINNING TO ATTEND EUROPEAN COLLEGES.

EAST GREENLANDERS ARE SEAFARING PEOPLE. AS IN THE PAST, BEFORE THE DISAPPEARANCE OF SEALS, THE MEN OF THE FAMILY STILL TURN TO THE OCEAN FOR A LIVELIHOOD. INSTEAD OF FROM KAYAK FLOTILLAS, FISHING IS NOW DONE LARGELY FROM POWERED CRAFT USING MODERN SEINING METHODS. COD IS THE MOST

IMPORTANT CATCH, AND FISH-PROCESSING PLANTS IN MAJOR SETTLEMENTS MAKE POSSIBLE CANNING AND EXPORTING OF CODFISH PRODUCTS. AS THE POPULATION EXPANDS, THESE EXPORTS ARE BECOMING INCREASINGLY MORE IMPORTANT TO GREENLAND'S ECONOMY.

SOUTHEAST GREENLAND HAS OTHER RESOURCES WHICH ARE AS YET MOSTLY UNDERDEVELOPED. MOST OF JAMESON LAND PROVIDES GOOD FORAGE FOR CONSIDERABLE NUMBERS OF MUSKOX. UNDER PROPER CONSERVATIONAL MANAGEMENT, THESE ANIMALS COULD YIELD COMMERCIAL QUANTITITES OF MEAT PRODUCTS. SHEEP RAISING IS PRACTICED ON A LIMITED SCALE AMONG THE FIORDS OF NANORTALIK DISTRICT IN THE FAR SOUTH, AND THIS TOO CAN BE INCREASED. ENOUGH WOOL AND WOOLEN PRODUCTS MIGHT BE PRODUCED HERE AND IN SOUTHWEST GREENLAND TO SUPPLY MOST OF THE DOMESTIC NEEDS OF GREENLAND'S PRESENT POPULATION. AT THIS TIME, HOWEVER, ALL MACHINE-WOVEN WOOLEN GOODS MUST BE IMPORTED.

COAL, LEAD, AND ZINC ARE AMONG THE MARKETABLE MINERALS KNOWN TO EXIST IN COMMERCIALLY EXPLOITABLE DEPOSITS IN SOUTHEAST GREENLAND. AS YET, NONE OF THESE HAVE BEEN DEVELOPED WITHIN THE REGION, ALTHOUGH A LEAD AND ZINC MINE HAS BEEN OPERATING FOR SEVERAL SEASONS AT MESTERS VIG ON THE NORTH COAST OF SCORESBY LAND (JUST OFF THE MAPPED AREA OF THIS STUDY).

7. CHECKLIST OF SETTLEMENTS AND METEOROLOGICAL STATIONS

THE FOLLOWING TABULATION IS PRESENTED AS A REFERENCE CHECKLIST FOR USE WITH THE POPULATION DISTRIBUTION MAP (FIG. 26) AND THE APPENDIX OF CLIMATIC TABLES AT THE END OF THE REPORT. SITES ARE LISTED ALPHABETICALLY WITH TYPE OF SETTLEMENT CLASSIFICATION AND MAP COORDINATES. THOSE PLACES WHICH ARE OR HAVE BEEN METEOROLOGICAL STATIONS ALSO SHOW ELEVATIONS AND PERIODS OF OPERATIVE RECORD, WHERE KNOWN. (SEE NOTES AT END OF LIST.)

PLACE NAME	TYPE	RECORD (YRS)	ELEV. (FT)	LATITUDE(N) (°)	(')	LONGITUDE(W) (°)	(')
AKINAITSÂT	P			65	31	37	10
AMITSUARSSIK	P			65	34	37	25
ANGMAGSSALIK	M, P	1895-	118	65	36	37	33
ATTERBURY DOME	M	1943-44	1186	65	04	40	14
AUGPILAGTOQ	O			60	10	44	25
B.A.A.R.E. BASE*	M	1930-31	51	65	38	38	39
COMMANCHE BAY	M	1944-45		65	06	40	18
DANMARKS Ø (HEKLA HAVN)	M	1891-92		70	30	26	12
EAST STATION (ÖSTSTATION)	M	1930-31	25	71	10	24	24
FINNSBU	M	1932-35	10	63	24	41	17

*B.A.A.R.E. = BRITISH ARCTIC AIR ROUTE EXPEDITION

Place Name	Type	Record (Yrs.)	Elev. (Ft.)	Latitude(N) (°)	(')	Longitude(W) (°)	(')
Frederiksdal	P			59	59	44	37
Hvalrosbugt	M, P	1945-46	29	70	29	22	03
*Igaliko	O			60	58	45	25
Igdlorajik	P			65	39	36	54
Igterajivit	P			70	27	22	23
Ikáteq	P			65	38	37	53
Ikateq (US AFB)	M, P	1942-47	187	65	56	36	41
Ikerasagssuaq	P			65	34	37	09
Ivssorigseq	P			70	27	22	36
*Kagsiarsuk	P			60	53	45	15
Kangerdlugssuak	M,	1932-33, 35-36 1950-	24	68	10	31	45
Kap Cort Adelaer	M,	1942-45, 1950-	44	61	52	42	05
Kap Dan	M	1943-45	701	65	32	37	10
Kap Tobin	M,	1943-		70	24	21	58
*Kinalik	O			60	34	45	40
Kulusuk	O			65	33	37	11
Kungmiut	O			65	52	37	01
Nanortalik	M, P	1884-	23	60	10	45	17
*Narsarssuak	M, P	1940-	89	61	11	45	25
Nordre Aputitêq	M,	1950-	39	67	48	32	16
Nuk	P			60	12	44	10
Østprøven	P			59	59	44	42
Pamiagdluk	P			59	55	44	23
Paornakajit	P			66	05	37	38
Prins Christians Sund	M, P	1943-	253	60	03	43	12
Qernertuarssivit	P			65	43	37	18
Røde Ø.	M	1891-92		70	30	28	03
*Sagdlek (Sagdlit)	M, P	1909-18	16	60	16	45	29
Sangmissoq	P			59	58	43	56
Sarfaq	P			65	50	37	47
Scoresbysund	M, P	1924-	56	70	28	21	58
Sivsingassoq	P			65	33	37	13
Skjoldungen	M, P	1940-	297	63	13	41	20
*Sletten	M, P	1932-	16	60	30	45	15
Sujunerajik	P			65	32	37	10
*Sydprøven	M, P	1932-	49	60	28	45	32

*Station located outside the study area (Julianehaab District).

Place Name	Type	Record (Yrs.)	Elev. (Ft.)	Latitude(N) (°)	(')	Longitude(W) (°)	(')
Tingmiarmiut	M	1950-	46	62	32	42	08
Torgilsbu	m	1932-40	34	60	32	43	11
Tuapait	P			60	07	45	10
Tugtilik (Lake Fjord)	m	1932-33	28	66	20	34	59
Ukiverajik	P			65	45	37	55
Unarteq	O			70	25	21	58
Utorqarmiut	P			65	54	36	22
Vandreblokken	P			70	39	24	00

Types: M - Radio-meteorological station
m - Meteorological station (now inoperative)
P - Populated place
O - Outpost (generally fewer than one dozen seasonal inhabitants)

Climatic Stations used in maps, graphs, or tables are underlined.

8. Selected Bibliography

1. American Geographical Society, Geographic Study of Mountain Glaciation in the Northern Hemisphere, Part 4 - North Atlantic Islands, New York, 1958

*2. American Meteorological Society, Meteorological Abstracts and Bibliography, Malcolm Rigby, Ed., Boston, 1950-55

3. Anderson, Lois C., The Standard Deviation as a Measure of Variability of Monthly Mean Temperature in the Northern Hemisphere, Tech. Rpt. EP-16, QM R&E Center, Natick, Mass., Jul 1955

*4. Arctic Institute of North America, Arctic Bibliography, Vols. 1-7, U.S. Department of Defense, Washington, 1953-58

5. Armstrong, Terence, Sea Ice Recording and Reporting Methods, Defence Research Board of Canada, Ottawa, 1955

6. Böcher, Tyge W., Biological Distributional Types in the Flora of Greenland, Meddelelser om Grønland, Vol. 106, No. 2, Copenhagen, 1938

7. British Air Ministry, Meteorological Office, Tables of Temperature, Relative Humidity & Precipitation for the World, Part I, North America, Greenland and the North Pacific Ocean, M.O. 617a, HM Stationery Office, London, 1958

*Comprehensive bibliography

8. Brun, Eske, Greenland Today, Grønlandsdepartmentet, Copenhagen, 1957

9. Columbia University Press Geographical Staff & American Geographical Society, Columbia-Lippincott Gazetteer of the World, Leon Seltzer, Ed., Columbia University Press, New York 1952

10. Danish Commission for the Direction of Geological and Geographical Investigations in Greenland, Greenland, Vols. 1-3, Copenhagen, 1928-29

11. Danish Greenland Administration Weather Bureau, Sammendrag af Statistiske Oplysninger om Grønland (Summary of Statistical Information about Greenland), Grønlands Styrelse Vejrjeneste, Copenhagen, 1942-45

12. -----, Vejrforholdene over de Grønlandske Kystområder (Weather Conditions along the Greenland Coast), Beretninger Vedrørende Grønland, No. 2, Copenhagen, 1952

13. Danske Meteorologiske Institut, Observations Météorologiques, Magnétiques, et Hydrométriques de l'Ile de Danemark dans Scoresby-Sund, 1891-92, faites par l'Expedition Danoises sous la Direction de C.H. Ryder (Meteorological, Magnetic, and Hydrometric Observations made at Danmark Island in Scoresby Sund, 1891-92, by the Danish Expedition under the Direction of C.H. Ryder), Copenhagen, 1895

14. -----, Opstillinger Vedrorende Vejrforholdene ved Nogle Grønlandske Kolonier, (Genesis of Weather Conditions at some Greenland Settlements), Copenhagen, 1949

15. Falkowski, Sigmund J. & A.D. Hastings Jr., Windchill in the Northern Hemisphere, Tech Rpt. EP-82, QM R&E Center, Natick, Mass., Feb 1958

16. Field, William O. & Associates, Atlas of Mountain Glaciers, Tech. Rpt. EP-92, QM R&E Center, Natick, Mass., Jun 1958

17. Godske, Carl L.S., T. Bergeron, J. Bjerknes, & R.C. Bundgaard, Dynamic Meteorology and Weather Forecasting, Part IV, American Meteorological Society and Carnegie Institute, Carnegie Publication No. 605, pp 468-504, Washington, 1957

18. Great Britain Admiralty Office, Arctic Pilot, Vol. II, Comprising Iceland, Jan Mayen, Svalbard, and the East Coast of Greenland together with the Greenland and Barents Seas, 4th Edition, London, 1934

*19. Hastings, Andrew D., Jr., Climatic Information Sources for Greenland, Research Study Rpt. RER-11, QM R&E Center, Natick, Mass., Jan 1957

*Comprehensive bibliography

*20. KOCH, LAUGE, LITERATURE FROM THE DANISH EAST GREENLAND EXPEDITIONS PUBLISHED IN MEDDELELSER OM GRØNLAND, MEDDELELSER OM GRØNLAND, VOL. 143, NO. 3, COPENHAGEN, 1954

21. -----, THE EAST GREENLAND ICE, MEDDELELSER OM GRØNLAND, VOL. 130, NO. 3, COPENHAGEN, 1945

22. MANLEY, GORDON, METEOROLOGICAL OBSERVATIONS OF THE BRITISH EAST GREENLAND EXPEDITION, 1935-36, AT KANGERDLUGSSUAK, 68°10'N., 31°44'W., QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY, VOL. 64. LONDON, 1938

23. MIKKELSEN, EJNAR, EAST GREENLAND, ROYAL DANISH MINISTRY FOR FOREIGN AFFAIRS, RINGKJØBING, DENMARK, 1953

24. MIRRLEES, S.T.A., METEOROLOGICAL RESULTS OF THE BRITISH ARCTIC AIR ROUTE EXPEDITION, 1930-31, GEOPHYS. MEMOIRS NO. 61, METEOROLOGICAL OFFICE OF GREAT BRITAIN, VOL. 7, NO. 4 (& AIR MINISTRY PUB. 356D), LONDON, 1934

25. PETERSEN, HELGE, DAS KLIMA DER KÜSTEN VON GRÖNLAND (THE CLIMATE OF THE COASTS OF GREENLAND), DANSKE METEOROLOGISKE INSTITUT, COPENHAGEN, 1935

26. -----, THE CLIMATE OF GREENLAND, ROYAL DANISH MINISTRY FOR FOREIGN AFFAIRS, RINGKJØBING, DENMARK, 1953

27. -----, THE DANISH METEOROLOGICAL SERVICE IN GREENLAND, ARCTIC, VOL. 1, NO. 1, ARCTIC INSTITUTE OF NORTH AMERICA, MONTREAL, 1948

28. PETTERSSEN, SVERRE, WEATHER ANALYSIS AND FORECASTING, McGRAW-HILL, NEW YORK 1940

29. -----, W.C. JACOBS, & B.C. HAYNES, METEOROLOGY OF THE ARCTIC, OFFICE OF THE TECHNICAL ASSISTANT TO THE CHIEF OF NAVAL OPERATIONS FOR POLAR PROJECTS (OP-03A3), U.S. NAVY, OPNAV P03-3, WASHINGTON, MAR 1956

30. RODEWALD, MARTIN, DREITÄGIGER STARKREGEN IN TORGILSBU (THREE DAY HEAVY RAINFALL AT TORGILSBU), ANNALEN DER HYDROGRAFIE UND MARITIMEN METEOROLOGIE, VOL. 68, HAMBURG, JAN 1940

31. RYDER, CARL H., DEN ØSTGRØNLANDSKE EXPEDITION, 1891-92, (THE EAST GREENLAND EXPEDITION, 1891-92), GEOGRAFISK TIDSSKRIFT, VOL. 11, COPENHAGEN, 1892

*COMPREHENSIVE BIBLIOGRAPHY

32. Rymill, J.R. & Q. Riley, The Tugtilik (Lake Fjord) Country, East Greenland, Appendix 1, Geographical Journal, Vol. 83, London, May 1934

33. Sanders, Frederick, Forecast Study for Ikateq, Greenland, U.S. Weather Bureau, Washington, 1945

34. Sharp, Robert P., Glaciers in the Arctic, U.S. Navy, Office of the Technical Assistant to the Chief of Naval Operations for Polar Projects (OPNAV-P03-28), OP-03A3, Washington, 1956

35. Storgaard, Ejnar, The Physiography of East Greenland, Greenland, Vol. 1, Copenhagen, 1928

36. Sverdrup, Harald U., Oceanography of the Arctic, Encyclopedia Arctica, Vol. 7, Part 6, New York, Jul 1951 (unpublished)

37. Therkildsen, Kjeld R., Greenland; Mountain, Sea, and Ice, Royal Danish Ministry for Foreign Affairs, Ringkjobing, Denmark, 1953

*38. U.S. Air Force, Air Weather Service, Bibliography on the Climate of Greenland, Directorate of Climatology, Prepd. by U.S. Weather Bureau, Washington, Oct 1955 (unpublished)

39. -----, Climate of the Northeast Air Command Region, 5th Weather Group, 8th Weather Squadron, Tech. Memo. No. 6, Washington, Oct 1953

40. U.S. Army Air Force, Air Weather Service, Climatology of the Arctic Regions, Special Study No. 58, Parts I, II, and III, Prepd. by U.S. Weather Bureau, National Weather Records Center, Asheville, N.C., 1946

41. -----, Frequency and Mean Temperature Data, Atterbury Dome, Greenland, National Weather Records Center, Asheville, N.C., 1945

42. -----, Studies on Local Forecasting, Greenland Weather Stations, Report No. 600-51, Asheville, N.C., 1944

*43. U.S. Army, Corps of Engineers, Bibliography on Snow, Ice, and Permafrost with Abstracts, Snow, Ice, & Permafrost Research Establishment, Wilmette, Ill., 1951-55

44. U.S. Board on Geographic Names, Preliminary Gazetteer; Greenland, Washington, Mar 1950

*45. U.S. Department of Defense. The Polar Bibliography, Vols. I and II. Technical Information Division, The Library of Congress, Washington, 1956-57

*Comprehensive bibliography

46. U.S. Navy, Hydrographic Office, Arctic Ice and its Drift into the North Atlantic Ocean, Edition No. 14, Supplement to Pilot Chart of the North Atlantic Ocean, Washington, May 1957

47. -----, Greenland Pilot, H.O. No. 74R, Emergency Edition, Chapter III, Washington, 1941

48. -----, Naval Air Pilot: Greenland-Iceland Weather Summary, Supplement B to H.O. No. 252, Prepd. by U.S. Weather Bureau, Washington, 1943

49. U.S. Weather Bureau, Index of Climatic and Weather Data; Greenland (index cards for 17 coastal stations), Washington (unpublished)

50. Vsesoiuznyi Arkticheskii Institut, Klimatologicheskii Spravochnik po Zarubezhnoi Arktike (Climatological Book of Reference on the Foreign Arctic), Vol. 177, Leningrad, 1941

51. Wager, L.R., and W.A. Deer, Geological Investigations in East Greenland, Meddelelser om Grønland, Vol. 105, Nos. 2, 3, and 4, Copenhagen, 1934, 1935, and 1939 respectively

52. Warming, Eugenius, The Vegetation of Greenland, Greenland, Vol. 1, Copenhagen, 1928

53. Woeikof, A. von, Klima und Föhn der Dänemark-Insel, Scoresby-sund, (Climate and Foehn of Danmark Island, Scoresby Sund), Meteorologische Zeitschrift, Vol. 36, Vienna, Jan 1901

APPENDIX

Monthly Climatic Tables

Comprehensive summaries (except Table VIII) of observed and derived climatic elements are presented in the monthly tabulations which follow. These data were compiled from the longest records available (1959) through Air Weather Service of the United States Air Force, the Danish Meteorological Institute, original reports of expeditions, and the United States Weather Bureau (some unpublished). Two stations, Narsarssuak and Sletten, are located outside the study area, but are close enough to appear on the mapped surface and be useful for comparative analysis.

CLIMATIC TABLES

TABLE I: MEAN TEMPERATURE (°F)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	36	18	16	19	25	34	41	45	43	38	30	23	20	29
ATTERBURY DOME	1	13	16	18	22	27	38	42	39	40	22	21	20	26
B.A.A.R.E. BASE	1	18	15	18	29	33	41	46	43	38	29	21	21	29
COMMANCHE BAY	1	15	10	22	27	35	36	41	40	30	23	18	18	26
DANMARKS Ø	1	-1	-12	-14	1	23	34	40	M	M	19	-4	-5	--
EAST STATION	1	-13	-14	-10	10	11	36	42	39*	M	13	-2	5	--
HVALROSBUGT	2	18	3	0	10	27	35	41	40	34	24	11	10	21
IKATEQ	4	21	14	22	25	33	41	44	42	39	31	25	21	30
KANGERDLUGSSUAK	1	4	5	9	24	37	38	44	42	33	24	26	12	25
KAP CORT ADELAER	4	23	22	24	27	33	38	41	42	38	32	26	24	31
KAP DAN	2	17	17	23	25	32	39	42	41	37	27	23	22	28
NANORTALIK	42	23	23	26	31	37	41	43	42	39	35	29	25	33
NARSARSSUAK**	13	20	21	27	32	43	50	52	50	43	34	27	22	35
PRINS CHRISTIANS SUND	5	25	24	27	30	36	41	44	44	41	35	30	27	34
SCORESBYSUND	12	4	4	5	14	27	37	42	39	34	20	14	9	21
SKJOLDUNGEN	5	23	21	24	28	35	41	45	45	40	33	27	25	32
SLETTEN**	2	22	25	24	33	42	44	48	48	44	36	28	24	35
TINGMIARMIUT	3-4	20	18	19	25	34	38	44	45	39	32	28	23	30
TORGILSBU	8	24	23	26	31	36	42	44	45	42	35	30	27	34

TABLE II: MEAN DAILY TEMPERATURE RANGE (F°)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	30	13	14	17	19	16	16	17	16	13	10	11	11	15
ATTERBURY DOME	1	10	13	11	14	10	12	13	13	11	9	10	11	11
B.A.A.R.E. BASE	1	13	14	14	13	11	13	13	11	10	7	9	10	11
COMMANCHE BAY	1	12	13	15	13	14	14	12	12	12	11	13	11	13
DANMARKS Ø	1	17	20	17	21	14	10	11	M	M	7	12	15	--
EAST STATION	1	25	26	23	19	21	10	10	M	M	13	15	23	--
HVALROSBUGT	2	18	19	20	19	15	13	15	14	11	15	16	15	16
IKATEQ	4	9	12	12	13	13	13	12	12	12	10	9	10	11
KANGERDLUGSSUAK	1	19	19	18	25	16	15	13	13	11	9	13	14	16
KAP CORT ADELAER	4	11	13	12	14	11	12	13	13	12	10	11	13	12
KAP DAN	2	8	8	9	7	10	12	12	10	9	7	7	8	9
NANORTALIK	47	18	23	19	13	9	11	7	9	9	10	11	17	13
NARSARSSUAK**	13	14	15	14	14	14	16	15	15	14	11	12	14	14
PRINS CHRISTIANS SUND	5	7	7	8	8	9	11	12	12	10	8	7	7	9
SCORESBYSUND	12	15	17	18	16	13	12	13	12	10	10	13	14	13
SKJOLDUNGEN	5	8	10	12	13	13	12	13	11	10	8	7	11	11
SLETTEN**	2	12	16	19	19	16	12	13	14	14	11	11	12	14
TORGILSBU	8	5	7	9	10	7	9	9	9	7	7	5	5	7

M = DATA MISSING
* ONE WEEK ONLY
** LOCATED OUTSIDE STUDY AREA

TABLE III: MEAN DAILY MAXIMUM TEMPERATURE (°F)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	30	23	21	27	35	43	50	54	52	45	35	28	25	37
ATTERBURY DOME	1	18	23	23	29	32	45	49	47	45	26	26	25	32
B.A.A.R.E. BASE	1	25	22	25	35	38	48	52	48	43	33	26	26	35
COMMANCHE BAY	1	21	17	29	33	42	46	47	46	38	28	24	23	33
DANMARKS Ø.	1	7	-1	-6	10	29	38	46	M	M	23	2	3	--
EAST STATION	1	0	4	2	17	20	42	48	43*	M	18	7	20	--
HVALROSBUGT	2	27	13	10	19	35	42	49	47	39	32	19	18	29
IKATEQ	4	25	20	28	32	39	47	50	48	45	36	30	26	36
KANGERDLUGSSUAK	1	12	14	18	39	47	47	51	49	39	28	31	19	33
KAP CORT ADELAER	4	29	29	30	34	39	45	47	48	44	38	32	31	37
KAP DAN	2	21	21	27	29	37	45	48	46	41	30	26	26	33
NANORTALIK	47	35	38	36	38	42	47	47	48	44	40	35	34	40
NARSARSSUAK**	13	27	29	34	39	50	58	59	57	50	39	33	29	42
PRINS CHRISTIANS SUND	5	29	28	31	34	40	47	50	50	46	39	33	31	38
SCORESBYSUND	12	12	12	14	22	33	43	49	45	39	25	20	16	27
SKJOLDUNGEN	5	27	26	30	35	42	47	51	50	45	37	31	29	38
SLETTEN**	2	28	33	34	43	50	50	54	55	51	41	34	30	42
TORGILSBU	8	26	26	30	36	40	46	49	49	45	39	32	29	37

TABLE IV: MEAN DAILY MINIMUM TEMPERATURE (°F)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	30	10	7	10	16	27	34	37	36	32	25	17	14	22
ATTERBURY DOME	1	8	10	12	15	22	33	36	34	34	17	16	14	21
B.A.A.R.E. BASE	1	12	8	11	22	27	35	39	37	33	26	17	16	24
COMMANCHE BAY	1	9	4	14	20	28	32	35	34	26	17	11	12	20
DANMARKS Ø.	1	-10	-21	-23	-11	15	28	35	M	M	16	-10	-12	--
EAST STATION	1	-25	-22	-21	-2	-1	32	38	33*	M	5	-8	-3	--
HVALROSBUGT	2	9	-6	-10	0	20	29	34	33	28	17	3	3	13
IKATEQ	4	16	8	16	19	26	34	38	36	33	26	21	16	25
KANGERDLUGSSUAK	1	-7	-5	0	14	31	32	38	36	28	19	19	5	17
KAP CORT ADELAER	4	18	16	18	20	28	33	34	35	32	28	21	18	25
KAP DAN	2	13	13	18	22	27	33	36	36	32	23	19	18	24
NANORTALIK	47	17	15	17	25	33	36	40	39	35	30	24	17	27
NARSARSSUAK**	13	13	14	20	25	36	42	44	42	36	28	21	15	28
PRINS CHRISTIANS SUND	5	22	21	23	26	31	36	38	38	36	31	26	24	29
SCORESBYSUND	12	-3	-5	-4	6	20	31	36	33	29	15	7	2	14
SKJOLDUNGEN	5	19	16	18	22	29	35	38	39	35	29	24	22	27
SLETTEN**	2	16	17	15	24	34	38	41	41	37	30	23	18	28
TORGILSBU	8	21	19	21	26	33	37	40	40	38	32	27	24	30

M = DATA MISSING
* ONE WEEK ONLY
** LOCATED OUTSIDE STUDY AREA

TABLE V: ABSOLUTE MAXIMUM TEMPERATURE (°F)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	42	48	59	52	57	64	78	77	77	70	56	56	49	78
ATTERBURY DOME	1	29	45	37	39	47	65	61	55	61	31	35	39	65
B.A.A.R.E. BASE	1	38	34	44	44	49	63	58	63	50	49	38	40	63
DANMARKS Ø	1	43	48	25	30	47	48	59	M	M	34	21	17	59
EAST STATION	1	19	20	16	35	26	52	54	M	M	29	21	33	54
HVALROSBUGT	2	46	45	33	33	55	67	63	55	53	53	51	35	67
IKATEQ	4	45	51	45	43	53	71	65	63	67	55	51	45	71
KANGERDLUGSSUAK	2	49	45	39	50	62	62	62	57	51	45	43	41	62
KAP CORT ADELAER	4	41	51	45	57	57	57	57	59	57	49	49	43	59
KAP DAN	2	35	45	39	39	57	67	63	61	65	39	41	41	67
NANORTALIK	31	53	53	51	59	62	68	66	67	64	59	57	63	68
NARSARSSUAK**	12	56	55	59	61	69	74	75	75	72	72	65	57	75
PRINS CHRISTIANS SUND	5	39	51	43	55	61	63	65	63	59	55	45	43	65
SCORESBYSUND	17	48	41	47	45	53	60	69	55	62	47	52	40	69
SKJOLDUNGEN	5	43	45	45	57	61	71	69	63	71	53	45	41	71
SLETTEN**	2	54	52	46	60	61	65	70	M	63	60	58	55	70
TINGMIARMIUT	3-4	37	38	42	43	47	52	69	57	56	47	38	37	69
TORGILSBU	8	41	43	43	49	53	72	69	71	65	57	47	54	72

TABLE VI: ABSOLUTE MINIMUM TEMPERATURE (°F)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	42	-23	-23	-26	-14	4	22	27	22	18	6	-13	-21	-26
ATTERBURY DOME	1	0	-7	-7	1	3	24	22	28	28	14	6	2	-7
B.A.A.R.E. BASE	1	-2	-2	-6	9	22	25	35	32	26	12	10	-1	-6
DANMARKS Ø	1	-29	-44	-52	-25	-1	17	32	M	M	0	-28	-37	-52
EAST STATION	1	-40	-44	-39	-17	-6	26	34	M	M	-7	-19	-38	-44
HVALROSBUGT	2	-29	-25	-29	-21	2	16	30	26	18	0	-21	-27	-29
IKATEQ	4	-9	-21	-17	-1	10	24	30	26	20	12	2	-5	-21
KANGERDLUGSSUAK	2	-14	-22	-14	-12	12	22	26	16	22	10	5	-6	-22
KAP CORT ADELAER	4	-1	-9	-3	6	12	20	26	30	26	16	8	1	-9
KAP DAN	2	-1	-19	0	8	16	26	30	30	26	16	10	1	-19
NANORTALIK	32	-6	-5	-5	6	20	26	30	29	22	16	8	-1	-6
NARSARSSUAK**	13	-26	-29	-15	-5	6	30	31	30	22	4	-5	-33	-33
PRINS CHRISTIANS SUND	5	8	1	4	14	14	24	30	28	28	24	14	12	1
SCORESBYSUND	17	-47	-43	-42	-30	-2	20	23	26	10	-13	-27	-38	-47
SKJOLDUNGEN	5	4	-11	2	1	18	24	28	30	28	18	14	6	-11
SLETTEN**	3	-3	1	-16	-11	22	32	32	35	28	15	5	-5	-16
TINGMIARMIUT	3-4	-3	-10	2	2	17	32	33	32	17	17	12	2	-10
TORGILSBU	8	-4	-15	-4	3	16	27	31	31	25	24	14	12	-15

M = DATA MISSING

**LOCATED OUTSIDE STUDY AREA

TABLE VII: ABSOLUTE TEMPERATURE RANGE (F°)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	42	71	82	78	71	60	56	50	55	52	50	69	70	104
ATTERBURY DOME	1	29	52	44	38	44	41	39	27	33	17	29	37	72
B.A.A.R.E. BASE	1	40	36	50	35	27	38	23	31	24	37	28	41	69
DANMARKS Ø	1	72	92	77	55	48	31	27	M	M	34	49	54	111
EAST STATION	1	59	64	55	52	32	26	20	M	M	36	40	71	98
HVALROSBUGT	2	75	70	62	54	53	51	33	29	35	53	72	62	96
IKATEQ	4	54	72	62	44	43	47	35	37	47	43	49	50	92
KANGERDLUGSSUAK	2	63	67	53	62	50	40	36	41	29	35	38	47	84
KAP CORT ADELAER	4	42	60	48	51	45	37	31	29	31	33	41	42	68
KAP DAN	2	36	64	39	31	41	41	33	31	39	23	31	40	86
NANORTALIK	31-32	59	58	56	53	42	42	36	38	42	43	39	64	74
NARSARSSUAK**	12	82	84	74	66	63	44	44	45	50	68	70	90	108
PRINS CHRISTIANS SUND	5	31	50	31	41	47	39	35	35	31	31	31	31	64
SCORESBYSUND	17	95	84	89	75	55	40	46	29	52	60	79	78	116
SKJOLDUNGEN	5	39	56	43	56	43	47	41	33	43	35	31	35	82
SLETTEN**	2-3	57	51	62	71	39	33	38	M	35	45	53	60	86
TINGMIARMIUT	3-4	40	48	40	41	30	20	36	25	39	30	26	35	79
TORGILSBU	8	45	58	47	46	37	45	38	40	40	33	33	42	87

M = DATA MISSING

**LOCATED OUTSIDE STUDY AREA

TABLE VIII: HUMIDITY RELATIONSHIPS*

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
	A.	MEAN DRY BULB TEMPERATURE (°F)												
SCORESBYSUND	12	4	4	5	14	27	37	42	39	34	20	14	9	21
ANGMAGSSALIK	36	18	16	19	25	24	41	45	43	38	30	23	20	29
TORGILSBU	8	24	23	26	31	36	42	44	45	42	35	30	27	34
	B.	MEAN DEWPOINT TEMPERATURE (°F)												
SCORESBYSUND	4	1	0	2	9	22	32	36	32	26	15	10	5	16
ANGMAGSSALIK	30	14	12	15	20	28	34	37	35	30	25	18	16	24
TORGILSBU	8	15	15	18	23	30	34	38	38	34	26	22	19	26
	C.	MEAN RELATIVE HUMIDITY (%)												
SCORESBYSUND	4	84	82	87	78	79	80	78	74	71	78	82	83	80
ANGMAGSSALIK	30	83	82	81	79	77	74	73	72	73	80	80	81	78
TORGILSBU	8	64	67	68	70	76	74	78	76	74	68	68	68	70

*3 SELECTED STATIONS FOR COMPARISON (HUMIDITY DATA ARE SCARCE)

TABLE IX: MEAN CLOUDINESS (PERCENT SKY COVER)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	30	66	64	61	58	61	59	54	53	59	66	65	64	61
B.A.A.R.E. BASE	1	63	58	55	71	70	51	52	55	64	58	55	64	59
DANMARKS Ø	1	74	58	52	62	71	64	66	M	79*	63	46	64	--
EAST STATION	1	65	57	52	62	53	73	51	M	M	60	50	71	--
IKATEQ	4	77	43	40	53	77	67	67	77	80	77	70	87	68
KANGERDLUGSSUAK	2	74	75	78	63	69	72	66	59	71	81	76	58	70
KAP CORT ADELAER	4	73	70	67	70	70	60	60	63	60	67	57	63	65
KAP TOBIN	3	64	57	57	54	66	78	68	59	60	78	54	67	64
NANORTALIK	41	67	65	65	64	66	68	65	66	67	63	63	63	65
NARSARSSUAK**	13	69	60	66	68	70	61	73	70	70	65	68	63	66
NORDRE APUTITEQ	3	69	77	60	57	71	67	64	62	70	80	65	66	67
PRINS CHRISTIANS SUND	5	65	63	68	65	67	73	72	67	73	65	64	60	67
SCORESBYSUND	11	56	59	53	52	62	56	55	58	55	56	59	60	57
SKJOLDUNGEN	4	73	70	73	60	80	67	63	83	67	67	67	57	69
TINGMIARMIUT	5	65	62	62	62	68	76	70	65	70	72	71	68	68
TORGILSBU	4	61	67	59	66	80	62	61	59	62	58	63	70	64

TABLE X: MEAN SURFACE WIND SPEED (MPH)***

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	30	6	6	5	3	3	3	3	3	3	4	5	5	4
ATTERBURY DOME	1	14	24	19	12	17	9	8	9	14	8	17	25	15
B.A.A.R.E. BASE	1	11	13	5	4	4	4	4	7	3	6	8	2	6
COMMANCHE BAY	1	18	18	13	14	11	7	8	8	19	16	21	18	14
DANMARKS Ø	1	2	2	1	1	1	1	1	M	2*	2	2	2	--
EAST STATION	1	4	3	3	3	1	1	3	M	M	8	5	5	--
KANGERDLUGSSUAK	1	4	6	4	4	4	3	4	6	4	9	13	10	5
NANORTALIK	41	12	11	11	10	7	10	7	6	8	9	10	10	10
SCORESBYSUND	12	5	5	4	4	3	3	3	3	3	4	4	4	4
TORGILSBU	4	10	10	9	8	11	7	6	5	5	7	10	14	8

TABLE XI: MEAN WINDCHILL (KGCALS/M²/HR)****

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ANGMAGSSALIK	30	995	990	915	780	635	590	525	535	625	750	865	905
ATTERBURY DOME	1	1280	1355	1265	1090	1080	785	695	765	805	975	1185	1290
B.A.A.R.E. BASE	1	1135	1210	935	745	695	595	540	660	610	835	1015	765
COMMANCHE BAY	1	1295	1385	1100	1030	865	770	710	725	1060	1145	1290	1250
DANMARKS Ø	1	965	1030	1025	890	665	550	490	M	680*	730	950	995
EAST STATION	1	1250	1205	1195	940	745	500	580	M	M	1130	1220	1115
KANGERDLUGSSUAK	1	1070	1135	1010	815	670	610	570	660	690	990	1045	1195
NANORTALIK	41	1045	1060	1000	910	750	745	670	660	755	825	945	1005
SCORESBYSUND	12	1110	1145	1085	940	750	610	555	580	665	865	940	1010
TORGILSBU	4	990	975	935	840	810	660	585	565	610	760	885	985

M = DATA MISSING

* INCOMPLETE MONTH

** LOCATED OUTSIDE STUDY AREA

*** ROUNDED TO CLOSEST MILE PER HOUR

**** ROUNDED TO CLOSEST 5 KG-CAL/M²/HR

TABLE XII: MEAN PRECIPITATION (INCHES OF WATER)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	29	3.2	3.0	2.9	2.3	1.1	1.8	1.4	2.3	3.0	4.6	2.8	2.7	31.6
ATTERBURY DOME	1	6.6	.6	2.2	3.4	3.0	2.0	1.6	4.4	1.4	.3	5.6	1.7	32.8
COMMANCHE BAY	1	2.7	2.8	6.7	8.5	7.0	4.5	4.6	6.8	4.7	3.8	1.2	5.6	59.0
HVALROSBUGT	2	3.9	.2	.6	.6	.6	.8	1.9	3.4	1.8	.3	.8	1.3	16.0
IKATEQ	4	4.8	3.5	5.8	3.4	2.9	1.2	2.3	3.0	4.2	5.9	4.4	5.9	47.3
KANGERDLUGSSUAK	1	T	1.9	.8	2.0	6.5	1.8	.7	1.8	T	1.8	5.9	1.8	25.0
KAP CORT ADELAER	4	4.5	4.5	3.7	3.0	4.2	6.1	3.3	4.7	5.1	6.4	3.4	4.0	53.0
KAP DAN	17	.9	2.0	3.6	1.8	2.0	2.3	3.7	5.6	3.7	1.2	3.7	1.5	32.0
NANORTALIK	9	3.1	2.7	1.7	2.6	1.8	3.5	1.8	3.6	3.7	5.0	3.4	1.8	34.7
NARSARSSUAK**	11	1.8	2.1	1.7	1.4	1.6	1.5	3.5	2.8	4.5	3.4	2.4	2.0	28.8
PRINS CHRISTIANS SUND	5	7.3	8.2	11.8	7.9	9.5	8.2	6.2	6.5	7.9	9.5	5.8	10.9	99.7
SCORESBYSUND	17	1.1	.9	.6	1.0	.7	.5	.9	.6	1.6	2.0	1.0	.9	11.8
SKJOLDUNGEN	4	6.3	4.1	5.5	3.2	3.1	3.4	2.4	3.1	2.5	4.9	3.3	8.4	50.2
SLETTEN**	4	2.0	2.2	1.0	2.3	1.3	7.3	1.5	2.6	2.1	5.6	2.7	1.6	32.2
TORGILSBU	8	5.9	8.8	4.9	4.7	9.3	6.3	2.8	3.8	9.4	7.6	6.1	6.5	76.1

TABLE XIII: MEAN NUMBER OF DAYS WITH FOG

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	30	1	1	2	4	9	11	11	9	5	3	2	1	59
ATTERBURY DOME	1	8	5	14	18	26	23	28	26	26	3	8	10	195
B.A.A.R.E. BASE	1	1	3	0	0	11	4	5	1	2	1	0	2	30
DANMARKS Ø	1	8	3	3	12	16	15	6	M	M	1	M	6	--
IKATEQ	5	2	2	3	2	3	2	3	4	4	3	2	2	32
KANGERDLUGSSUAK	2	0	x	0	x	2	3	5	3	1	1	0	0	15
KAP DAN	2	1	0	2	4	8	8	10	7	5	4	2	4	55
KAP TOBIN	3	2	2	2	2	6	8	16	11	4	1	2	1	57
NANORTALIK	41	x	1	1	2	7	10	15	13	7	3	1	x	60
NARSARSSUAK**	13	1	1	2	1	1	1	2	2	3	3	2	1	20
NORDRE APUTITEQ	3	1	1	1	1	4	5	7	5	2	1	1	x	29
PRINS CHRISTIANS SUND	5	x	x	x	1	2	4	4	3	1	1	x	x	16
SCORESBYSUND	11-17	4	5	5	7	13	11	11	8	8	4	4	6	86
SKJOLDUNGEN	5	3	2	9	4	9	9	11	6	6	9	4	6	78
SLETTEN**	3	2	2	3	3	7	10	11	9	10	5	2	1	65
TINGMIARMIUT	5	x	0	1	x	1	1	1	x	x	x	0	x	6
TORGILSBU	4	2	0	1	2	2	2	2	3	2	1	0	1	18
TUGTILIK	1	0	0	2	6	4	11	10	1	1	1	0	0	36

T = TRACE (0.05 INCH OR LESS)
M = DATA MISSING
x = LESS THAN 1.0 DAY
**LOCATED OUTSIDE STUDY AREA

TABLE XIV: MEAN SNOW DEPTH (INCHES)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ATTERBURY DOME*	1	13.0	M	M	M	M	.0	.0	.0	.0	.0	4.0	8.0
COMMANCHE BAY*	1	90.0	90.0	103.0	120.0	120.0	82.0	22.0	8.0	23.0	45.0	40.0	69.0
HVALROSBUGT*	2	26.0	34.0	42.0	67.0	45.0	10.0	T	.0	M	5.0	14.0	42.0
IKATEQ*	4	18.0	28.0	23.0	25.0	11.0	T	T	.0	T	2.0	9.0	11.0
KAP CORT ADELAER*	3	23.0	30.0	44.0	83.0	50.0	12.0	T	T	T	5.0	6.0	12.0
KAP DAN*	2	11.0	10.0	13.0	12.0	9.0	3.0	.0	.0	T	5.0	12.0	10.0
NANORTALIK	2	6.0	6.7	6.9	5.6	T	.0	.0	.0	T	M	M	M
NARSARSSUAK**	7	4.2	7.3	3.9	2.2	T	.0	.0	.0	.0	T	1.6	2.9
PRINS CHRISTIANS SUND	3	36.0	33.0	60.0	65.0	44.0	6.0	T	T	T	3.0	6.0	20.0
SCORESBYSUND	5	24.0	25.0	28.0	40.0	39.0	8.0	T	.0	T	5.0	11.0	22.0
SKJOLDUNGEN*	3	99.0	100.0	100.0	101.0	91.0	30.0	2.0	.0	T	7.0	21.0	60.0

M = DATA MISSING
T = TRACE (LESS THAN 0.1 INCH)
* VALUES DERIVED FROM FREQUENCY DATA
** LOCATED OUTSIDE STUDY AREA

TABLE XV: MEAN NUMBER OF DAYS WITH 6 INCHES OF SNOW COVER (OR MORE)

STATION	YRS REC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANGMAGSSALIK	4-5	--	--	--	--	--	--	--	--	--	--	--	--	260*
IKATEQ	4	22	26	31	30	21	0	x	0	0	2	18	30	180
KANGERDLUGSSUAK	1	31	28	31	30	31	21	0	0	1	24	30	31	258
KAP DAN	2	16	17	23	20	21	5	0	0	0	8	29	17	156
KAP CORT ADELAER	4	23	28	31	30	31	18	0	0	0	6	9	29	205
PRINS CHRISTIANS SUND	4	24	15	22	20	21	10	0	0	0	5	12	28	157
SCORESBYSUND	3	31	28	31	30	31	14	0	0	0	10	22	23	220
SKJOLDUNGEN	5	31	28	31	30	31	28	4	0	0	9	17	31	240

* PETERSEN (26) 1953: MONTHLY VALUES NOT GIVEN
x = LESS THAN 1.0 DAY

DISTRIBUTION LIST

GENERAL STAFF

1 Deputy Chief of Staff for Logistics
Department of the Army
Washington 25, D. C.

1 Deputy Chief of Staff for Personnel
Department of the Army
Weshington 25, D. C.

1 Deputy Chief of Staff for Military
Operations, Department of the Army
Washington 25, D. C.

1 Chief of Research & Development
Department of the Army
Washington 25, D. C.

ARMY

5 The Quartermaster General
Department of the Army
Washington 25, D. C.

2 Commanding General
Philadelphia QM Depot, U.S. Army
2800 South 20th Street
Philadelphia, Pa.

4 Commandant
QM Food & Container Institute for the
Armed Forces, U. S. Army
1819 W. Pershing Rd.
Chicago, Illinois

3 Commanding Officer
QM R&E Field Evaluation Agency, U.S. Army
Ft. Lee, Virginie
Attn: Chief, TSO

2 QM Liaison Officer, WCOL-8
Wright Air Development Center
Wright-Patterson AF Base
Dayton, Ohio

1 Commandant
The QM School
Ft. Lee, Virginia
Attn: Library

1 Commanding General
Frankford Arsenal, Phila 37, Pa.
Attn: Engr. Psychology Div. (L2)

3 Hqs., Army Electronic Proving Ground
Ft. Huachuce, Arizona
Attn: Aviation & Meteorological Dept.
Tech. Information Br.
Deputy Chief for Meteorology

2 Commanding General
The Engineer Center
Ft. Belvoir, Va.

1 Commanding Officer
Diamond Ordnance Fuze Labs.
Weshington 25, D.C.
Attn: Tech Reference Section
(ORDTL-012)

2 Commanding General
Aberdeen Proving Ground
Aberdeen, Maryland

2 Chief Signal Officer
Department of the Army
Washington 25, D. C.
Attn: Res. & Dev. Div.

ARMY (Cont)

1 Commanding Officer
Signal Corps Engr. Lab.
Ft. Monmouth, N. J.

1 Office of Chief of Engineers
Department of the Army
Temp. Bldg. T-7, Grevelly Point
Washington 25, D. C.
Attn: Research & Dev. Div.

4 CO, Chemical Werfare Laboratories
Army Chemical Center, Maryland
Attn: Technical (AS 13) Library

1 Chief Chemical Officer
Department of the Army
Bldg. T-7, Grevelly Point
Weshington 25, D. C.
Attn: Res. & Dev. Div.

2 CO, Hq., Medical Nutrition Lab.
Fitzsimons Army Hospital
Denver, Colorado
(1-Dr. Friedmann)

1 Armed Forces Institute of Pathology
Washington 25, D. C.

1 Chief, Armed Services Medical
Procurement Agency
84 Sands St., Brooklyn 1, N. Y.
Attn: Property Officer
Marked: Req. DUED #151

1 Chief of Transportation
Department of the Army
Temp Bldg. T-7, Gravelly Point
Washington 25, D. C.

2 Commanding Officer
Transportation Res & Eng Command
U. S. Army
Ft. Eustis, Virgtnia
Attn: Tech Services Dir.

1 The Army Library
Pantagon Bldg.,
Washington 25, D. C.

1 Commandant, Command & General Staff
College
Ft. Leavenworth, Kansas

1 Commandant, U. S. Military Academy
West Point, New York

1 Commanding Officer, Detroit Arsenal
28251 Van Dyke St., Centerline, Micn.
Attn: Res & Engr. Div.

1 Commanding General
Hqs., U.S. Army Medical R&D Command
Main Navy Bldg.
Washington 25, D. C.
Attn: NP&PP Research Branch

2 Commander
QM Intelligence Agency, U.S. Army
Washington 25, D. C.

2 Executive Director
Military Clothing and Textile Supply Agency
2800 S. 20th St., Phila. 45, Pa.

1 Commanding Officer
QM R&E Field Evaluation Agency, U.S. Army
Airborne Systems Test Div.
Yuma Test Station
Yuma, Arizona

ARMY (Cont)

1 Commanding Officer
Cold Weather & Mountain Indoctrination
School
Fort Greeley, Alaska

1 Commending Officer
Fort Greeley, Alaska
Attn: Post Library

AIR FORCE

2 Department of Air Force
Hqs., USAF, Wash 25, D. C.
(1 DC/S Material, 1 DC/S Dev.)

1 Director
Air University Library, Attn: 7575
Maxwell AFB, Alebama

2 Commandant
USAF School of Aviation Medicine
Randolph AF Base
Randolph Field, Texas

1 Commander, Arctic Aeromedical Lab
APO 731, Seattle, Washington

1 Commander
Air Res & Dev Command
Attn: RDSBTL (Hqs., Tech Lib. Br.)
Andrews AF Base, Washington 25, D.C.

1 Commander
Wright Air Development Center
Wright Patterson AF Base, Ohio
Attn: Tech Library

1 Commander
Strategic Air Command
Offutt AF Base, Nebreska

1 Chief, Nutrition Div.
Air Development Center
Aero-Medical Lab.
Wright Patterson AFB, Ohio
Attn: Dr. Harry C. Dyme

1 Commander
AF Cambridge Research Center
Air Research & Development Cmd.
Laurence G. Hanscom Field
Bedford, Mass.
Attn: CRTOTT-2

NAVY

1 Director
Naval Research Laboratory
4th & Chesapeake St., S. W.
Washington 25, D. C.

1 Chief, Bureau of Ordnance
Department of the Navy
Washington 25, D. C.
Attn: R&D Div.

1 Naval Medical Research Institute
National Naval Med. Res. Center
Bethesda, Md.

2 Chief of Naval Research
Washington 25, D. C.
Attn: Code 402S

1 Chief, Bureau of Ships
Department of the Navy
Washington 25, D. C.
Attn: Code 331

1 Chief, Bureau of Med. & Surgery
Dept. of the Navy, Wash 25, D. C.
Attn: Code 33

NAVY (Cont)

1 Commander, U. S. Naval Ord. Test
Station, China Lake, Calif.
Attn: Code 753

1 Chief, Bureau of Aeronautics
Dept. of the Navy, Wash 25, D. C.
Attn: Code AE 52

1 Chief, Bureau of Supplies & Accounts
Department of the Navy
Washington 25, D. C.

CONARC

1 C.G., U.S. Continental Army Command
Ft. Monroe, Va.

1 President
U. S. Army Artillery Bd.
Ft. Sill, Okla.
Attn: ATBA

1 President
U.S Army Armor Board
Ft. Knox, Ky.
Attn: ATBB

1 President
U. S. Army Infantry Bd.
Ft. Benning, Ga.
Attn: ATBC

1 President
U. S. Army Air Defense Bd.
Ft. Bliss, Texas
Attn: ATBD

1 President
U. S. Army Airborne and Electronics Bd.
Ft. Bragg, N. C.
Attn: ATBF

1 President
U. S. Army Aviation Bd.
Ft. Rucker, Ala.
Attn: ATBG

1 Commanding Officer
U. S. Army Arctic Test Board
Ft. Greely, Alaska
Attn: ATBE

BOARDS & COMMITTEES

1 Army Committee on Environment
Chief, Research & Development
Pentagon, Washington, D. C.

1 Armed Forces Pest Control Bd.
Walter Reed Army Med. Center
Forest Glen Annex
Main Bldg.
Forest Glen, Maryland

1 Army Research Committee
Chief, Research & Development
Pentagon, Washington, D. C.

MISCELLANEOUS

1 National Research Council
2101 Constitution Ave., Washington, D.C.
Attn: Advisory Bd. on QM R&D

10 Armed Services Technical Information Agency
Arlington Hall Station
Arlington 12, Va.
Attn: TIPDR

2 Gift and Exchange Division
Library of Congress
Washington 25, D. C.

1 U. S. Department of Commerce
Weather Bureau Library, Washington, D.C.

1 Central Intelligence Agency
Collection & Dissemination
Washington 25, D.C.

1 National Library of Medicine
Washington 25, D. C.

1 Generalintendanten
Standardiseringskontoret
Festningen
Oslo, Norway

1 Marine Corps Equipment Board
Marine Development Center
Marine Corps School
Quantico, Va.

1 Office of Technical Services
U. S. Department of Commerce
Washington 25, D.C.
Attn: Tech Rpts Sec (THRU OQMG)

1 U. S. Department of Agriculture Library
Washington 25, D. C.

1 Commandant
Industrial College of the Armed Forces
Ft. McNair, Washington 25, D. C.

1 QM Representative
Army Command and General Staff College
Department of the Infantry Div.
Ft. Leavenworth, Kansas